AMERICAN VETERINARY REVIEW.

MARCH, 1902.

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EDITORIAL.

EUROPEAN CHRONICLES.

CONTAGIOUS PLEURO-PNEUMONIA.—Remarks upon this subject may be of secondary importance to our American colleagues, the disease having been wiped out so thoroughly and so carefully kept away by our Bureau of Animal Industry, and yet for many there are still facts of interest to know, and it is in that direction that Prof. Nocard, after his great discovery of the microbe of pleuro-pneumonia, sets himself to work.

An important question, and one of the most interesting points in the history of the disease, was that in relation to the modes of contagion. How does the infection take place? How are the organisms of those which are near the sick animals invaded by the contagious element?

The pleuro-pneumonia animal coughs frequently; it then throws quantities of fine droplets of mucus, which float in the atmosphere or drop on the solid or liquid food of its neighbors: those droplets are no doubt the principal agents of contagion. But how do they enter the organism? By the digestive apparatus or through the respiratory channel?

These questions have just been answered by a series of experiments, and the firm conclusions of Prof. Nocard are that it is by the respiratory organs that the infection takes place; that the ingestion of virus, even in large quantities, does not give the disease, and does not confer immunity against a natural experimental attack.

Immunity against such a disease is an important matter; and for a long time it has been admitted that intravenous injection of pleuro-pneumonia virus confers a great protection, a lasting immunity. This has also been the object of experiments, but the results have been entirely different from those that were expected, and which had already been declared as positive by others. In three series of experiments where the injection of liquid virus or of cultures of the microbe was made in the jugular, or in the auricular vein, none of the eight cows experimented upon received immunity; the injection did not modify in any way the receptivity of the animals.

While I mentioned cultures in the preceding experiments, I may also state that those cultures are almost entirely used for the obligatory vaccination in France. They take the place of the practice of vaccination with serosity obtained from the diseased lung—serosity which was more or less suspected of impurities, and which often gave rise to severe complications, which, in fact, have been for so many the greatest objection to vaccination. It seems that by the use of pure cultures scarcely any complications can occur.

Is it due to their use that at last France has been relieved of the disease? Some of the last monthly sanitary bulletins report no cases. Not likely. In many outbreaks the pole-axe has been the main liberator. But there seems to be a special indication for the use of the preventive inoculation. It is this: Upon the frontiers, principally those of Spain and France, there exists at some period of the year a kind of traveling among the cattle, that is to say, fields of pasture are offered to French cattle on Spanish ground. These cattle, in healthy condition, come in contact with diseased Spanish cattle, and when they return home they carry with them the germs of the malady; hence almost yearly outbreaks. To resort to the pole-axe every year would be an enormous expense, and after all would prove not only useless, but a great danger. To guard against this, by advice of the Commission of Epizoötics, the preventive inoculation with the use of fresh and pure cultures is recommended for all

bovines which are to cross the Spanish frontier. Thus rendered refractory to the disease, they could not bring the germ back into their own barns.

* * *

FOOT-AND-MOUTH DISEASE.—For several weeks there has been no question of greater importance in the Italian agricultural papers and among veterinarians than the treatment of this disease by the method invented by the present Secretary of Agriculture, Dr. Bacelli.

This subject is not interesting to American veterinarians to the same degree as to Europeans. Foot-and-mouth disease does not exist in the United States. Dr. Salmon and his body of coworkers are watching—but yet, who knows? At any rate, a few remarks on the subject may not be without interest.

Before becoming Secretary of Agriculture, Dr. Bacelli was a simple but well-appreciated practitioner. It is to him that credit is due for the use of heroic remedies injected into the blood to obtain more certain and quicker effects, especially in some infectious diseases. Malaria, among others, offered the opportunity for wonderful effects by this mode of treatment. Salts of quinine, injected into the pernicious form of that disease, reduced to zero the mortality among his patients. Many other applications has Dr. Bacelli made known by the numerous and remarkable results he has obtained. When he reached the Agricultural Department he found that foot-and-mouth disease existed to an enormous extent in Italy, as, in fact, it has for some time back in all Europe. Remembering the good results he had obtained by injections of corrosive sublimate, he decided to have them tried for foot-and-mouth disease. He called his official veterinarian, fixed the dose according to the disease to from 2 to 4 centigrams for calves, 4 to 6 for adult cows, 6 to 8 for large steers and bulls, and the experiments were started. First, they were made on 52 sick animals. Most of them required only two injections, a few had to get three, and all recovered in a very short time. Another trial was made in a district where the disease was most fatal; in 26 animals the result was the same.

And since then the "*cure Bacelli*" is the question of the day. It has been used by many veterinarians, and our worthy contemporaries, *La Clinica Veterinaria*, *Il Nuovo Ercolani* and *Le Giornale della Reale Societa ed Academia Veterinaria*, have given the hospitality of their pages to the many articles written upon the subject.

The results are of so much importance that the Italian Secretary of Agriculture has decided to apply it at the expense of the State in some special districts.

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PROF. CROOKSHANK'S SOUND ADVICE.—It is customary in England for one of the professors to deliver an opening address in the various veterinary schools. In America the same custom exists also; at least, in some, if not in all. But in England those addresses are usually published; in America they are not in recent years, at any rate. Why?

There are often interesting points to notice in those remarks; they do not always relate to dry subjects, or to scientific allusions; but for many they serve as a means of introduction of each professor to his entering class and contain sound advice to the new students.

The last opening address of the Royal College of Veterinary Surgeons of London by Professor Crookshank was a very interesting one, and one of the passages, where he speaks of the grand question of education, preliminary and higher, and in relation to the one, while dwelling upon the advantages that would be derived by the student of possessing knowledge of foreign languages, especially French and German, he says: "I do not require to be told that the veterinary surgeon has to think first of making a living. I am quite aware of that fact; but it must be remembered that traveling on the Continent is quite a different matter from what it was twenty years ago. The expenses have been reduced to such an extent by coöperation that an opportunity for foreign travel is placed almost within the reach of all. I would not even leave out the student; I should like to see parents encouraging the idea of 'stu-

dents' coöperative tours,' thus making them to combine a little sight-seeing and the enjoyment of traveling with a visit to the museums and laboratories and school buildings of such institutions as the great Veterinary School of Alfort, that of Berlin, the Pasteur Institute in Paris, and the Hygienic Institute at Berlin, where diseases common to man and the lower animals are constantly the subject of investigation. Traveling scholarships would be of quite as much advantage to veterinary as to medical students."

This is a wise suggestion, which can be just as well realized by American veterinary students as by those of England. Similar coöperative traveling clubs already exist in the United States. Every year members of those organizations of various forms of instruction come and visit Europe; why could not veterinary students join them? Why could not such prize be offered by colleges instead of the free scholarship? Why could not some generous benefactor be found to help to defray at least part of the expenses? Of course there are many objections that can be made; there are many ifs in the way of a realization of the objects, but yet are the obstacles insurmountable? That is a question.

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KOCH'S OLD AND NEW THEORIES.—Professor McFadyean is decidedly a severe critic, and he seldom, if ever, advances a statement that he cannot substantiate with proofs by undeniable evidence. His last editorial in the December issue of his excellent quarterly shows it. At the recent Congress on Tuberculosis, answering the new theory advanced by Prof. Koch as to the relationship existing between human and bovine tuberculosis, he said: "I thought, Prof. Koch, when you had found a bacillus as the cause of tuberculosis in man and a bacillus in the cow, you came to the conclusion that they were one and the same." To which Koch answered: "No, I never indicated such a conclusion."

In a notice to a correspondent to the *Veterinary Record* the writer said that Prof. McFadyean was foolish to have made the

remark mentioned above. In answer to the accusation of foolishness the worthy editor replies by publishing paragraphs from Prof. Koch's first circumstantial publication on the etiology of tuberculosis, which he extracts from the *Berliner Klinisch Wochenschrift* of 1882: "Tuberculosis of the domesticated animals, and especially bovine tuberculosis, is undoubtedly another source of infection. This fact indicates the position which in the future hygiene must take in connection with the danger of the flesh and milk of tuberculous animals. Bovine tuberculosis is identical with human tuberculosis, and is thus a disease transmissible to man. It must, therefore, be treated like other infectious diseases transmissible from animals to human beings. Be the danger which arises from the consumption of the flesh or milk of tuberculous cattle ever so great or ever so small, it exists, and it must be prevented. It is sufficiently well known that anthrax flesh is often consumed by many persons for a long time without any injurious result, and yet no one concludes therefrom that the traffic in such flesh ought to be permitted.

"With regard to the milk of tuberculous cows, it is worthy of remark that the extension of tuberculosis to the mammary glands is not seldom observed by veterinary surgeons, and it is therefore quite possible that in such cases the tuberculous virus may be immediately mixed with the milk."

What a difference in the opinions of the learned German authority! A. L.

VOLUME XXV. CLOSED.

The present number of the AMERICAN VETERINARY REVIEW marks a distinguishing milestone in its long life, for it completes a quarter of a century of very earnest work in behalf of the cause which it has served so faithfully. To the comparatively few members of the veterinary profession of this country who have been in active practice for all those years, and who have followed its course from Volume I, No. 1, until the present day, its history is so intermingled with their own

that, as some have said, it is a part of their lives. The same hand which was instrumental in its launching is the one which holds the helm to-day, and his efforts in behalf of the constituency which the REVIEW has served so long are just as earnest as in its first number, while he has surrounded himself by others who cannot have failed to absorb the inspiration of his own energy and enthusiasm. Veterinary journalism in this country, at least, must of necessity be in the hands of those who love it for the good which they can do, for there is little hope of other reward. The REVIEW has jnst completed its most prosperous year, not in the sense that it has turned money into the pockets of those who have labored for this success, but that it has been enabled to give the profession the best volume in the quarter of a century which it has existed, and during which time it has never missed a number, the present one completing just three hundred issues. Long ago it pledged itself that when financial success crowned its efforts, its readers should be the gainers by giving them a better journal, and we feel that on this occasion we can frankly say that we have fulfilled our contract. And while it is more satisfying to point to an accomplished fact than to eulogize future intentions, we simply continue our assurance that the REVIEW will bestow upon its readers all the fruits of the success which it shall achieve, so that volume XXVI may be looked to with confidence to outclass every previous volume. We believe that no reader of volume XXV will be willing to struggle through the coming year without its monthly visits. They will please bear in mind the business rules established two years ago, that if they wish it continued to their addresses they must forward their subscriptions at the close of the term for which they have paid. As the majority of such subscriptions terminate with the present number, we trust this notice will be sufficient.

VOLUME XXV OF THE REVIEW closes with this number, and a few statistics may be of interest to those who follow the fortunes of veterinary journalism. They speak much more

volubly than promises of the progress being yearly made by this publication, and we confidently anticipate the presentation of a similar table at the close of Volume XXVI.

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THE SO-CALLED CEREBRO-SPINAL MENINGITIS.

The REVIEW has been so fortunate as to secure the manuscript of an important contribution to the study of this little understood disease of the soliped, which has up to the present time been as full of mystery as the malady has been fatal. Dr. Samuel S. Buckley, veterinarian to the Maryland Agricultural Experiment Station, working in conjunction with Drs. Welch and MacCallum, of Johns Hopkins University, Baltimore, has just published in the *Journal of Experimental Medicine* the results of their investigations to date and have put into operation an effort for further and more extensive investigations into the disease in question. In the April issue of the REVIEW their preliminary report will be published, together with some excellent plates illustrative of the disease, the nomenclature of which they have preferred to change to "Acute Epizoötic Leucoencephalitis in Horses."

Some paragraphs from a private letter to us from Dr. Buckley will probably give a fuller idea of the work which he has accomplished and undertaken than any explanation we could offer :

" . . . . I have, however, always given as much attention as possible to the study of the horse disease taught as 'Cerebro-spinal Meningitis' in the text-books and at the schools.

"I long ago concluded that this name was a 'misfit,' and that it was worth looking into. The disease is usually an annual visitor to Maryland, and I have seen hundreds of cases since I came here in 1896. Until the winter of 1900–1901, the post-mortems never revealed any more to me than to others; but at the last of the outbreak, I made an interesting observation and one which, if known to others, failed to elicit much comment; *i. e.*, a lesion of the brain substance itself, with but slight meningeal congestion. After the first case, I searched for it in all cases, and in each of the following cases I found the lesion varying in prominence. I knew then that I was on the right track, and, believing the best help available was none too good, I consulted with Prof. Wm. H. Welch, of Johns Hopkins University, at Baltimore, Md. He had already worked on this disease for a long time with the late Dr. Clement, when the latter was State Veterinarian, but without any success. He was intensely interested, and we then coöperated in its study, his associate, Dr. W. G. MacCallum, giving his time to the laboratory work. The results of our work to date are given in the reprint I send you. . . . . There is much now to be done upon it before it is completely solved, but this disease is our worst enemy here, and it will continue to receive study. There is at present a bill before our Legislature to create a commission for the purpose of studying this disease. We will have that commission formed of a pathologist, bacteriologist and veterinarian, I think, without any trouble, if the bill passes."

In a more recent letter Dr. Buckley encloses a copy of the bill referred to, which has had its third reading in the lower house with a vote of 66 to 9. The bill is as follows:

A BILL ENTITLED AN ACT FOR THE CREATION OF A COMMISSION TO INVESTIGATE THE CAUSE, ORIGIN, TREATMENT, PREVENTION AND CURE OF THE DISEASE IN HORSES CALLED CEREBRO-SPINAL MENINGITIS.

SECTION 1. Be it enacted by the General Assembly of Maryland, that the Governor of the State be and is hereby authorized to appoint a commission to be known as the Commission to investigate the disease in horses called Cerebro-Spinal Meningitis, to consist of not less than five persons, of whom the pathologist of Johns Hopkins University and the Veterinarian of the Maryland Agricultural College shall be two, whose duty it shall be to investigate the cause, origin, treatment, prevention and cure in the State of Maryland of the disease in horses called Cerebro-Spinal Meningitis.

SEC. 2. The members of the said commission shall serve without pay, except expenses actually incurred, and shall continue in office for a term of two years from date of their appointment. They shall meet in

Baltimore city within thirty days after the date of their appointment and thereafter at such times and places as may be necessary. They shall fill by a majority vote any vacancy that may occur in their membership and shall report the results of their investigations not later than January first, 1904.

SEC. 3. For the purpose of defraying necessary expenses, including printing, rent, postage, traveling and clerical assistance, the sum of two thousand dollars, or so much thereof as may be necessary, is hereby appropriated to be paid by the Treasurer of the State upon the warrant of the Comptroller at such times and in such sums as may be authorized by the commission.

SEC. 4. And be it enacted, That this Act shall take effect from the date of its passage.

A BILL is now before the Legislature of Massachusetts to abolish the Cattle Commission, and to establish in its stead a Cattle Bureau of the State Board of Agriculture, which shall have a chief (presumably a veterinarian, although the bill does not so designate him), at an annual salary of $2000. The other members of the board, as provided by the bill, will be the Lieutenant Governor, *ex officio*, the Secretary of the Commonwealth, the President of the Agricultural College, and the Secretary of the State Board of Agriculture. Verily, the State which led in the eradication of contagious animal diseases is fast bringing up the rear.

ASSEMBLYMAN PENDRY, of Kings, is taking a deep interest in legislation affecting the veterinary profession of New York State, and he may be relied upon to keep a watchful eye on any pernicious bills which find their way into the Senate and Assembly. He is a member of the Committee on Public Health, to which all such measures in the Assembly are referred.

THE STUDENT'S ASSOCIATION OF THE KANSAS CITY VETERINARY COLLEGE held a social session of that body in the class rooms of the college building on February 1st. The students were very gratified by the attendance of a large number of lady friends, and all were entertained by a musical and literary programme, at the close of which refreshments were served. The student body voted the social session a great success and declared for future repetitions of the same.

ORIGINAL ARTICLES.

MILK INSPECTION.

By Andrew Hyde, D. V. S., Norwich, Conn.

Read before the Connecticut Veterinary Medical Association, February, 1902.

The object of milk inspection is to oversee that the milk supplied to people in general is clean, of good quality and produced by well-fed healthy cows; to prevent the use of adulterants of any kind, and to guard against the spread of infectious and communicable diseases.

More specifically: It means that after the animal has done its part to furnish this essential food, the seperator cannot be used to remove the cream, and coloring material added to the bluish-white remnant to impart the rich yellow appearance of whole milk of good quality without being detected.

The sale of milk from poor or diseased cows or those kept in damp, undrained, ill-ventilated stables, and managed with no regard to hygienic principles, will be guarded against. Milk produced under such conditions is almost always poor in quality, infected with myriads of bacteria, and has been known to be sold for the genuine article after preservatives have been used to keep it sweet.

The influential customer who is able to make a good remonstrance to the milkman of the poor quality he is supplied, should not receive the rich milk from the top of the can, while his neighbor who cannot have his objection so forcibly felt gets the thin, dirty liquid from the bottom of the vessel.

Household employés (cooks), who for various considerations think it to their advantage to skim the milk, and add vinegar to make good milk sour, possibly turn the trade to a different party, will not get on so well in their peculiar practice.

Milk inspection acts as a safeguard against the spread of infectious and communicable diseases, such as diphtheria, typhoid fever, tuberculosis, scarlet fever, infant intestinal diseases, etc. That some of these diseases can be produced by contaminated

milk is apparent from the following statistics. These figures have been frequently quoted, but it is not generally understood that they apply only to a short period, namely, since 1880, and it is deemed advisable to recall them here to emphasize that milk is a factor in causing disease.

One investigator reports fifty epidemics of three thousand five hundred cases of typhoid fever, and another fifty-three epidemics with three thousand two hundred and twenty-six cases, a total of six thousand seven hundred and twenty-six cases compiled by these two writers. It was determined in these epidemics that the germ of typhoid fever was distributed by infected milk along certain milk-wagon routes. Seven epidemics of diphtheria with five hundred cases have been reported in England, and eleven epidemics and five hundred and one cases in New York, a total of a thousand and one cases, all due to contaminated milk. The same investigators report forty-one epidemics of scarlet fever, with a total of two thousand three hundred and ninety-three cases, all traceable to infected milk. "No doubt many infants, children and grown persons contract tuberculosis by drinking infected milk." From this it is apparent that, under certain conditions, milk is a significant factor in spreading disease; and it would seem as if this phase of the question alone was sufficient to warrant the inauguration of a system of thorough inspection in every city without emphasizing the question of fraud in relation to the traffic.

When the control of milk is more generally established and the regulations duly enforced, it is probable that there will be a smaller death-rate in children under three years of age, which is estimated to be about one-third of all infants, 9-20 of which is said to be directly due to milk. The question of pure milk for children, of whose food it constitutes a greater part, is, therefore, especially important.

It operates to keep dairies and places where milk is kept for sale in cleaner condition, so that it will not be exposed to dangerous odors, which are readily absorbed, making it unfit for use.

It tends to establish the confidence of people in milk, who, realizing that they are being supplied a pure article of standard quality, a quart of which, worth five or six cents, being equal in food-value to three-quarters of a pound of beefsteak that costs two to three times as much, will use more of it, perhaps, for no other reason than to reduce living expenses. The United States is the greatest dairy country of the world, yet some of the European nations consume two to three times as much milk per capita as America. The explanation is that "we do not appreciate the food-value of milk and its products."

LOCAL CONDITIONS.

The local necessity of milk inspection will depend upon the following general and specific conditions: The population of the city or town; whether milk is largely produced by the consumers themselves or purchased of vendors; the kind and general condition of the cows that are kept; the reputation of the dairymen and dealers; the carelessness and greed of consumers; the necessity of milk in every family; its easy adulteration, so that its food-value and actual value become greatly diminished in almost an instant without cost; and the fact that poor milk cannot be detected by its appearance. The inferior apple, potato, meat, egg, flour, and almost anything else used in the household except milk is noticeable at a glance, and the appearance alone will indicate the condition. Milk, as a rule, if the measure is full, will pass unchallenged. Of course, what may be regarded as the general necessity for controlling milk are applicable to local conditions as well.

The fact that the production of milk is largely in the hands of a class distinguished for industry and fair-dealing does not preclude the possibility of fraud. If fraud is practised it is safe to say that it is not general; but its elimination would be beneficial to the dairy interest. The man who sells milk containing four per cent. of fat cannot compete with an opponent whose milk contains two or two and a half per cent., because it costs more to produce the former than it does the latter kind of milk. The four per cent. milk represents the product of good cows that

have been abundantly suppled nutritious food; the two and a half per cent. milk is usually that of inferior animals indifferently fed.

If cream has been removed it cannot always be determined by the appearance of the milk. Cream or fat is the most essential constituent of milk. In butter or cheese factories it is the basis of value of the milk delivered by the patrons. It should be equally so for milk delivered to individuals and families. How is the consumer to know if milk that should have four per cent. of fat contains only two and a half or three per cent.? There is no inexpensive way for consumers to regularly and easily find that out. The invention is yet to be devised for determining the fat content of milk according to these conditions. Until it appears purchasers of milk are at the tender mercy of the seller. It is true that the Babcock test is a rapid method for finding the fat content of milk, but the least expensive apparatus obtainable for the purpose of a single test costs about five dollars. Moreover the detail required for making the test renders its use impracticable for general household purposes. Another way and one that would be more generally adopted, if known, is the collection of a composite sample, and sending it to a milk analyst. The expense is practically nothing, but it requires a little painstaking effort. Consumers could generally adopt this plan and pay for the milk according to the fat it contains.

Retailing milk direct to customers is considered to be the best of all markets for dairymen, especially in places where milk is not subject to the requirements of a legal standard for milk and inspection. Milk delivered to a butter or cheese factory, as stated, is sold on a basis of its fat content, and is tested as often as is necessary, frequently once a month, to determine the value, and payment is made according to the quality. If the milk is an inferior article, the return to the dairyman is correspondingly less. Milk sent to contractors in a distant city, where inspection is established, must be of a certain standard of purity and quality or it is subject to deduction. Hence the

dairyman naturally finds it more profitable to market his product himself by retailing it to customers where there is no inspection. The purity and quality are not likely to be seriously questioned, and he suffers no loss, except, perhaps, by bad bills. It is apparent, therefore, that a city without inspection fosters poor milk. In justice to consumers that premium should be removed. "The farmer is himself protected by law in every bag of a shipment of fertilizer he receives that it shall be uniform and up to the analysis." So the purchaser of milk should have the right to hold vendors to a reasonable requirement.

I have said that a city without inspection fosters poor milk. The question may arise, how does it do it? One answer is that "some milk producers are quite abreast of the times, and by the use of a little machine known as the separator extract all the cream and sell what remains as the real thing." That answer is based on the assumption that dairymen keep only good cows that give rich milk; in fact, some one has said "that it is so fatty in its natural condition that some of the richness must be removed before the city dyspeptics can digest it." But another explanation has been given to account for the poor milk retailed to consumers, in cities without inspection; and that is, that they keep a different class of cows than those who furnish milk to creameries and cheese-factories, the milk of which is naturally so thin that it does not require to be skimmed to make it wholesome. Aside from the levity of this explanation it seems reasonable.

It can hardly be doubted that it is to the interest of the patron of the creamery and cheese factory to keep only such cows as produce rich milk, for the richer his milk is the more money he makes. Since the advent of the cheese factory and creamery laws the up-to-date patron of them has gone into the milk-testing business for the sole purpose of finding out which of his cows, if any, are not paying a profit for the food they consume; that is one of the things he must know if he would succeed, and he has made himself familiar with the way of determining it, and it is safe to infer that he does a duty to

himself; the consequence is the profitless cow is sold. Where does she go? Certainly she is not "hacked" around among cheese factory patrons; they have no use for that kind. She is perhaps a well-bred young cow that would very likely pay for her feed in the barn of a dairymen who retails his milk to consumers, who so often think any kind of milk is all right if the measure is long enough, and there is where she gets a home. So it seems reasonable to conclude that the poor milk sometimes supplied consumers in cities where there is no control of the milk traffic, is not due to the fraudulent use of the milk separator, but is partly chargeable to a thin-milk-class of cows indifferently managed.

The following conditions in cities of varying sizes and widely separated sections may be taken to indicate what may exist in any city.

In cities in Pennsylvania of 342 samples of milk "tested, for fat, sixty-four (18.7 per cent.) were found to contain less than three per cent.; 41 of these were below 2.75 per cent., 22 below 2.3 per cent., 12 below 2.25, and 7 below 2 per cent. Of 329 total solids determined, 190 were below 12.9 per cent., 72 less than 11.5 per cent., and 37 less than 11 per cent. The specific gravity of 329 samples was below 1.029 (which is considered the minimum of good milk). The restaurant milk as a class was found to be badly adulterated, the average per cent. of total solids in all the samples examined from this source (29) being only 11.33 per cent., and 13 of the samples were below 3 per cent. of fat and 11.5 per cent. of total solids. Fifteen per cent. of the samples examined were undoubtedly watered or skimmed."

Recorded analyses of investigations in Chicago are as follows: "Of 272 samples examined, and which were sold as whole milk, the variation in total solids range from 6.24 to 18.44, a difference of 12.2 per cent. Variations in fat range from .5 to 10.4, a difference of 9.9 per cent. Solids not fat varied from 4.2 to 10.6, a difference of 6.4 per cent. The average percentage of fat in 272 samples, is 3.17. In 263 samples the average percentage of total solids is 11.71, and the average percent-

age solids not fat is 8.54. Of 272 samples, 134 or 49.26 per cent. contain less than 3 per cent. of fat, and 181, 66.54 per cent., contain less than 12 per cent. of total solids. Of the 272 samples sold as whole milk 90, or 33.09 per cent., may be considered as legal according to the city ordinances; and 235, or 86.4 per cent., are below the averages of the American analyses of whole milk. In other words, *two-thirds of the milk sold was adulterated* or below the low requirements of the city."

In relation to the question, "Does milk inspection lessen the percentage of adulteration," the experience of the Philadelphia authorities may be cited. There it was found that the adulterated milk in 1892 was 11.15 per cent. In 1897, five years later, this percentage was reduced by 8.77, and the inspector discovered only 2.38 per cent. of adulterated milk.

COMPOSITION OF MILK.

The component parts of milk consist of six principal ingredients: viz., water, fat, casein, albumen, milk-sugar and ash. Other compounds are present, but in such minute quantities that they are of no practical significance. Clean, normal milk contains about 87 per cent. of water, 4 per cent. of fat, 3½ per cent. of casein and albumen, 5 per cent. of milk-sugar, and .7 of one per cent. of mineral salts. These proportions vary somewhat from different causes, but the figures given are the average of innumerable analyses. The chief constituents, fat and water, vary within such limits that certain States have established legal standards for milk somewhat under the proportions given below, which it is considered adulterated.

Wherever milk is sold there should be a legal standard for milk law, because "experience has shown that it *does* protect the consumer by preventing the sale of impure, adulterated milk." It is claimed by a competent authority "that a fair average quality of milk contains 13 to 13.50 per cent. of total solids, and from 4.00 to 4.50 per cent. of fat, and people are entitled to this kind of milk." The average per cent. of total solids is 12.30 in the legal standard for milk law of seventeen (17) states having such a law.

Connecticut is one of the States without a milk standard law, although it has the distinction of having had such a law among its statutes for six days in 1895. A very good law was passed by the General Assembly in 1895 and approved June 28. A repealing act, however, was passed and approved July 4, following.

If by the better methods in dairy management and improved breeds of cows' milk containing 13 or 13.50 per cent. of total solids can be regularly produced, a legal standard requiring such quality would not be a hardship on the honest vendor, while it would tend to eliminate the unscrupulous one from the business. It should be borne in mind that a low standard, as well as no standard, acts as a premium on poor milk.

BACTERIA OF MILK.

Milk secreted by the healthy gland is pure, but shortly after becomes contaminated with bacteria to a greater or less extent. This bacterial infection constitutes the chief impurity of milk, assuming, of course, that the straining process has been sufficient to remove ordinary stable dirt that almost inevitably gets into it, and that adulterants have not been used. It has been determined by experimentation that all of these impurities can be kept out of milk by the practice of suitable sanitary regulation and pasteurization. Indeed, it has been found in quite recent observations by E. A. de Schweinitz that some milk produced under sanitary regulation, was almost free from bacteria. This should go far toward emphasizing the value of control of the dairy, stables, and places where milk is kept for sale.

The bacterial flora of milk have been extensively studied by competent investigators and the species and numbers, and many of their effects upon milk are now a matter of common knowledge among them. Lactic acid fermentation, the most common change of milk, which produces souring, is due to bacterial development. The old belief was that early souring was due to thundery weather, something the cow had eaten, or that she was sick. The common idea is that the bitter taste

sometimes acquired by milk is attributable to strong food of some kind, but it is now known that it may be of bacterial origin. Abnormal colors, and disagreeable odors are sometimes traceable to the same cause. Aside from the bacteria that are harmless and those that produce fermentation, there are pathogenic (disease-producing) germs sometimes found in it. Tuberculosis may be instanced as to the most common disease affecting bovines and man alike; it is the disease most to be feared. Slow and insidious in its nature, it affects the appearance of an animal usually after long infection. For years the animal may be apparently healthy, all the organs seeming to perform their natural function, but long before the time when the cow shows signs of disease and the milk becomes thin and otherwise unnatural in appearance, she may be disseminating the germ of tuberculosis. Notwithstanding the view of Dr. Koch that the danger of transmission of tuberculosis to man through the flesh, milk and milk products of tuberculous cattle, is hardly greater than that of hereditary transmission, there is ample justification for not removing any sanitary barriers at present. Even the Congress before which his opinion was delivered, did not sustain his opinion, but overwhelmingly decided against him.

The bacteria that produce diphtheria, typhoid fever, scarlet fever, through the agency of milk, do not gain entrance to it from sick cows, as has sometimes been supposed, but partly by the milk being held in open vessels in rooms adjacent to those occupied or frequented by persons suffering or convalescing from those diseases.

Bacteria are vegetable, microscopical bodies that produce the changes in animal and vegetable substances, known as decomposition, putrefaction, decay, etc. They are so small that millions of them have been found in a drop of badly tainted milk. They vary in size and shape and multiply rapidly by division of the cells and the production of spores. During growth some of them develop poisonous chemical ptomaines. Most species develop rapidly where heat, moisture and animal, also vegetable matter are abundant. Some require air to grow

in, others do not; some grow best in an acid medium, others in an alkaline or neutral one.

Bacteria are destroyed by sunlight, dry air, lack of organic matter, antiseptics, and finally certain species are antagonistic to others, such as the variety used as a butter starter. About 200 species are known to be partial to milk and its products.

The number of bacteria in milk as usually delivered in cities is very large. One bacteriologist (de Schweinitz) found an average of 61,886 per cc. in 32 samples. The same observer found the average number of bacteria in 132 samples of sanitary milk to be 5971 per cc. Another writer states that city milk usually contains from 10,000 to hundreds of thousands of bacteria to a single cc. Of 32 samples of milk taken from milk wagons in the city of Washington, D. C., and examined by de Schweinitz, one showed only about 2500 per cc.; one 4000 per cc., five others between 10,000 and 15,000; six between 30,000 and 50,000 and the remainder, 18, over 50,000 per cc.; in several instances over 115,000 per cc. While he found that the *majority* of 135 samples of sanitary milk varied from 200 to 5000 colonies per cc. He inferred that in those cases where the number of bacteria was small, the milk was collected with considerable care, and the other cases spoke for themselves. One observer found that milk drawn in a pasture under favorable conditions, contained 88 bacteria per cc., while the average from samples drawn in a dark filthy stable was 685,000 per cc. Sixteen samples of milk collected from groceries in Boston contained 4,577,000 per cc.

The city of Buffalo fixes the maximum limit of bacteria in milk for human use at 10,000 per cc. Dirt or filth of any kind in milk is a sure indication of bacterial infection.

If milk is naturally a clean fluid and bacteria constitute the chief impurity, the question of their origin, development, etc., in relation to milk, is important. Where media suitable for their nourishment and growth is plentiful, there they are found in greatest numbers.

(*To be continued.*)

A STUDY OF SALT SICK CATTLE.

By W. E. French, D. V. S., Daytona, Florida.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathologal science."

During the past year I have given the greater part of my time to the investigation and study of the condition known as "salt sickness in cattle," its cause, symptoms, treatment and prevention.

The investigation of this condition was taken up by the State Experiment Station, under the direction of Prof. Stockbridge. And it was thought best to establish a temporary station in Osceola county, as the stockmen were willing to co-operate with us, in that locality. This was done, and at one time we had fifteen animals under treatment, representing different stages of the trouble.

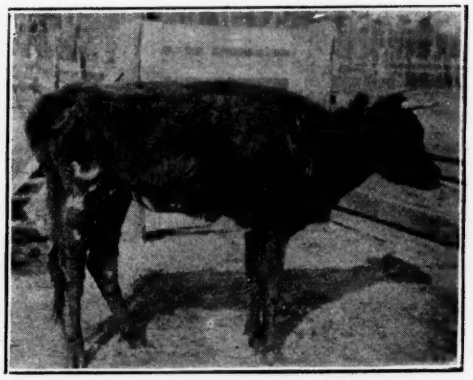
This work was done on the premises of J. E. Ennis, M. D., who co-operated in the work. Quite a number of cases were examined and post-mortems were held in different parts of the State, by Prof. Stockbridge and myself.

While in conversation with the president of the Stockmen's Association of Osceola County, I was impressed with the fact that great numbers of young cattle died with the trouble every year. And he made the statement that he thought that 90 per cent. of the deaths were from this disease. I might give the statements of stockmen and farmers from different sections of the State, but will not take the time, only wishing to give facts. I believe it to be a condition rather than a specific disease, and is most prevalent in the early months of the year, when obliged to eat inferior vegetation, such as wire-grass, black-jack oak and palmetto leaves, and such like, resulting in improper and insufficient nutrition. As to special location of this trouble, it is confined chiefly upon the higher sand hills or ridges, constituting the backbone of the Florida peninsula, and extending from the Georgia line to the Everglades.

The symptoms are loss of appetite, or abnormal appetite, the craving of foreign substances, like bones, leather, clay or dung —loss of flesh, chronic anæmia, as evidenced by the thinness of

Case C.—One of the worst cases I have ever seen in last stages with cerebral symptoms, gritting of teeth and "bad scours," skin tight, hair on end, could scarcely detect action of heart. Noticeable improvement after ten days' treatment with the solution of lime and iron.

the blood, often ulceration of the glands between the lower jaw, pale mucous membranes, hide bound, staring coat, back arched, bowels often very constipated and at other times scouring profusely. One of the most prominent symptoms is the grating of the teeth. It was suggested time and again that sand was the cause of this trouble, but in no case have I found sand enough to cause any trouble.



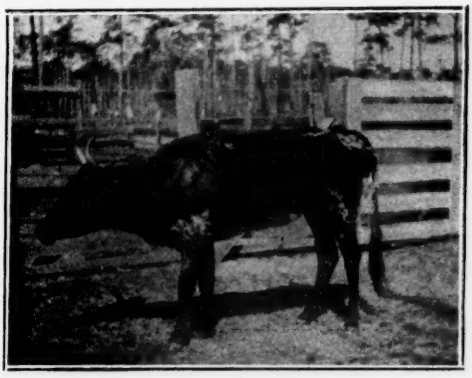
No. 2.—A typical case of "Salt Sickness" in last stages. Constant gritting of teeth, back arched, skin exceedingly tight, temperature high, bowels discharge profuse.

Some were inclined to think it was too much salt, while others thought it was for the want of salt.

The flat woods and low lands seem to be to a great extent exempt.

No. 3 —A typical case, with constipated bowels, high fever, weak heart action, no appetite. Cured in one month, with solution of lime and iron.

Cattle only are affected so far as I can learn—whether other animals are or are not sometimes affected, might be open to controversy. Young animals are perhaps more susceptible than the older cattle. The organs affected are in almost every case the small intestines. Sometimes the stomach, but in most of the post-mortems we find more or less ulceration of the small intestines. The spleen wasted away, blood deficient in red



No. 4.—A typical case with cerebral symptoms, high fever, weak heart action, bowels constipated, no appetite, constant gritting of teeth. Condition corrected in two weeks with the solution.

globules. In some we find high fever, and in others much below normal, and in nearly every case a weak heart action—and this is not to be wondered at when one studies the foods they get, and often restricted to the use of soft or surface water.

This condition may be brought about by the eating of coarse and fibrous grasses, which overtask the digestive powers, irritate the mucous surfaces of the stomach and bowels.

Foods which possess astringent properties and tend to check secretion may also act as an exciting cause.

Vegetable deficient in some essential element, especially that grown on poor, sandy soils, such as the sand hills of Florida, and restricted for a long time on the same kind of food, will in time result in a deficiency of red globules in the blood, the result of chronic conditions of digestion and the mesenteric glands, causing increased paleness of the mucous membranes and paper skin, and as the blood becomes poorer, all symptoms are aggravated, movements become unsteady, the hair easily detached, appetite fails, the dung is passed in small quantities and very hard, eyes sunken, staggering gait, hurried breathing, and may die any moment.

In this condition the animals are especially attracted by alkaline and saline substances, due to the depraved appetite, and this is why we often see them chewing an old bone or shoe, etc. This condition may last for months, the animal ultimately dying, worn out by the long-continued fever.

The bones often become brittle and fracture easily following this condition.

Food deficient in some of the constituents required to supply the wear and growth of the body, and especially those deficient in lime salts. Cattle on the sand hills are predisposed to it—one in a herd suffers though all may feed on the same range, and in such cases the condition must arise from the affected animal not assimilating properly the nutritive elements of the food it gets to eat, and again acute impactions of the manifolds are usually complicated with congestion and inflammation. Also result from over-stimulating food, or from dry heating ail-

ment, or from irritating fibrous grasses and we may have stupor or convulsions.

In this condition we often find the spleen wasted away and dried up, due to the animal's starving condition, not being able to assimilate properly the food taken.

These are the conditions found in cattle upon the sickly ranges of South Florida.

The change of affected animals to new ranges or pastures is both preventive and curative in effect. Alimentary correctives and tonics are suggested as counteracting these conditions. The use of lime water, gentian and iron salts, have proven invariably beneficial. The question has often been asked—can this condition be prevented? I will say after a close observation and study of this condition that it can be to a large extent—"An ounce of prevention is worth many a pound of cure in this case." In the first place see that the animal has a change of feed; often the change from the sand hills to the low lands will give the animal a new lease of life.

In some sections of the State the stockmen have brought the chemicals from the low lands, in the shape of the heavy clay, to their stock at home, and given it to them in their drinking water or placed it in troughs so that they could help themselves. Now these seem to be on the right track, as in these sections there is a deficiency of lime.

Lime is a natural constituent of the animal textures, but being present in most articles of food, extra supplies are seldom required. But on the sand hills of Florida there is a great deficiency of the lime salts.

The Need of Lime in Agriculture.—A large amount of the agricultural failures in Florida, the small yield, the perishable nature of stuff raised, its breaking down on the road and arrival in market in bad order, are due to the absence of mineral matters, especially lime, in the majority of our soils.

All vegetables, fruits and grains contain an important portion of lime when reduced to ashes. Yet what do we find in our Florida soils? Several years ago our Experiment Station

analyzed samples of soils from several counties of the peninsula and by referring to that analysis it will be seen that in nearly all soils tested the percentage of lime was far below one per cent., generally less than one-tenth of one per cent., and often none whatever. Yet we know that all vegetables, fruits and grains demand lime and animals still more, as from sixty to seventy per cent. of bone contists of phosphate and carbonates of lime. For the lack of lime the Florida marsh pony, living on marshy land, where the soil is of purely vegetable origin, grows small and stunted. The same is true of the native cattle living all their lives on sandy lands where there is almost no mineral in the soil but silica ; they are inferior in stature having no mineral elements to maintain the tone and vigor of the system. In such regions where brush heaps have been burned, leaving the ashes to fertilize the ground with minerals, lime and potash making the grass sweet and tender, the cattle depasture it into the very ground. They evidently require the minerals in their feed as man needs salt for a relish. It is a fact that in the interior states where the soil is of a mineral origin, cattle require salt. In Florida they care little for it, but consume lime greedily, even bones. The humane farmer will not look with indifference upon this spectacle of his live stock actually suffering for an element which their systems instinctively demand.

Therefore it is necessary to add lime to supply this deficiency. Lime water is appropriate for gastric derangements and will often correct and check diarrhœa in calves ; and is also useful in all forms of malnutrition, indigestion and prevents acidity. Therefore I suggest the use of lime water as the best and cheapest method of supplying this deficiency

The phosphate of lime or calcium phosphate is present in bones, nerves, and other animal textures; occurs abundantly in the intercellular fluid, and wherever cell-growth is most active and is hence an essential constituent of food and a restorative.

Its absence in the dietary is shown to induce softening of the bones and general wasting ; it is deficient in the bones of pregnant animals, and furthermore children living on some of the

sand hills and ranges where they have no other water than soft or surface water, have very poor teeth, but where lime water has been supplied there has been a decided improvement in the teeth. This form of lime is especially useful in all forms of malnutrition conjoined with iron for anæmic and badly nourished scouring young animals. Bran is especially useful for young stock, as it contains a large amount of calcium phosphate.

I have suggested a mixture of iron, lime and salt for this condition, after using it with marked success myself upon range cattle and also upon the farm, or it can be used in solution; the proportions best suited are lime, air-slacked and fresh, 1 pound, powdered sulphate of iron two pounds, salt, ten pounds—by adding one-half pound of plaster of Paris this can be made into a brick, by adding a small quantity of water, which can be placed in any protected place and the animals will soon take to it. Or for those who prefer the solution it can be made with one ounce of lime, one ounce of iron in five gallons of water.

ALUMNI ASSOCIATION OF NEW YORK UNIVERSITY.—A conference of the presidents and secretaries of the several alumni associations of New York University was held at the Academy of Medicine, New York City, Oct. 28, 1901, the following associations being represented: New York University Medical Alumni, Bellevue Medical Alumni, Veterinary Alumni, Law Alumni, Jr., Collegiate Alumni, Law and Pedagogy Alumni. An association was formed bearing the name, "The General Alumni Society of New York University." Officers were elected and a Constitution adopted, and it was decided to hold a triennial dinner, which should be the occasion of the regular meeting for the transaction of business. The first dinner was held at the Hotel Savoy, Feb. 4, and 307 sat at the several tables. At the veterinary table there were 18, as follows: Drs. J. E. Ryder, W. A. Young, H. T. Cronk, Wm. Anderson, C. E. Clayton, Wm. Henry Kelly, J. W. Fink, R. T. Churchill, Wilfred Lellman, E. J. Decker, W. J. Coates, J. L. Robertson, Wm. A. Engeman, Wm. C. Miller, Robert W. Ellis, H. T. Foote, H. D. Gill, and Atkinson. The affair was pronounced by all those present to be a great success.

ANATOMO-PATHOLOGIC STUDY OF RINGBONE AND SPAVIN AS INDICATED BY EXAMINATION OF PATHOLOGIC SPECIMENS.

By S. J. J. Harger, D. V. M., Philadelphia, Pa.

Read before the January meeting of the Keystone V. M. Association.

There is some diversity of opinion as to the manner of production, the seat of the primary lesion and the order of progression of the successive stages of the alterations of these diseased conditions. I anticipate that some of you may entertain varying views upon these points, and I shall merely interpret the facts as they appear to have presented themselves to me from a series of specimens which I have examined.*

1. *Ringbone.*—By this term I shall designate the exostoses having for their base the bones from the middle of the first phalanx to the os pedis (coronary ringbone). It is most frequently the lower extremity of the first and the upper end of the second phalanges—at the tuberosities where the lateral ligaments are attached—that are the primary seat of the exostosis. In rare cases the latter may be confined to the pyramidal eminence of the third phalanx, involving the termination of the anterior extensor tendon of the phalanges and accompanied by a bulging of the superior border of the hoof. The distinction of *high* and *low*, *true* and *cartilaginous* ringbones of the English and French should, I believe, be discarded.

Ringbones, according to the seat of the lesion, may be *articular* and *peri-articular*.

In the former the process is as follows: In the compact bone tissue a short distance under the articular cartilage, a rarefying ostitis takes place over an area appearing in transverse section as large as a pea or larger. The bone tissue becomes absorbed, leaving a cavity filled up with a more or less soft, embryonic tissue and blood vessels; in other words, a *rarefying* ostitis. The process gradually extends towards the articular cartilage,

* Specimens in the museum, Veterinary Department, University of Pennsylvania.

which becomes ulcerated over irregular areas and desquamates, as is frequently seen in cases of osteoporosis, constituting an *osteo-arthritis.* This inflammatory zone in the bone now becomes the seat of a condensing ostitis (osteosclerosis). The soft vascular, embryonic material now becomes organized, infiltrated with calcareous matter and converted into condensed or compact bone. The articular cartilage of the opposing bone at a point opposite to articular ulceration of the bone first affected likewise commences to ulcerate and leads to an osteo-arthritis at that point. The two articular ulcerations being contiguous will finally form adhesions and become coössified. This centre of ossific union may be localized, or in aggravated cases may involve the entire articular surface and form a complete ankylosis. There is first a rarefying, then a condensing ostitis and, finally, ossific union of the two bones at those points where the process is completed. The articular ulceration usually commences towards the margin of the articular surface.

The histologic alterations are the absorption of the bony tissue and the bone cells, enlargement and saccular dilatations (lacunæ of Howship) of the Haversian canals which are filled with embryonic cells and congested blood vessels—a picture which is repeated in the generalized bony lesions of osteoporosis and called osteitism or ostitic diathesis, which so often in these cases predisposes to fracture.

2. *Periarticular.*—The exostosis develops upon the periphery of the bone. It is an *osteo-periostitis.* It commences as a rarefying and then passes into a condensing ostitis of the superficial or subperiosteal layers of the compact tissue of the bone, which is communicated to the periosteum and provokes a periostitis. The result is a bone tumor of variable dimensions. The exostoses of the ends of two contiguous bones may become coössified, forming a peripheral or false ankylosis, while the articular surfaces themselves may retain their normal state.

The structure of an exostosis differs slightly from normal bone: It is more porous, the Haversian canals are larger, saccular and filled with embryonic tissue and blood vessels; the

bone cells are less numerous; its earthy salts are less abundant and by maceration in an acid solution it becomes decalcified in much less time than normal bone. The ligaments and the synovials also show inflammatory alterations.

Reciprocal Relation of Articular and Periarticular Ringbones.—Which is primary and which is secondary when both exist? Which occurs the more frequently? This is what I more especially sought for. Udriski of the Bucharest Veterinary School examined 55 specimens: 20 were exclusively periarticular without any articular lesion; 24 showed lesions in both places; 11 were ankylosed. The collection which I examined consisted of 29 specimens: 20, two-thirds of the entire number, were exclusively periarticular; 9 showed both external and internal lesions. Among the latter, there was ankylosis, partial or complete, and while the exostoses were well marked or large, the articular coössification was progressive; that is, the exostoses were more or less stationary, the only difference in the specimens was the successively increasing degree of the obliteration of the joint, which seems to have been the last thing to have taken place. In one case there was false ankylosis, while the articular surfaces were normal. In no case was there any articular ulceration without periosteal deposit.

The evidence obtained from these specimens seems to point to the general deduction that ringbone begins primarily on the periphery of the bones and only secondarily extends into the joint. Whilst it cannot be denied that the articular lesions may be primary, these cases are by far in the minority, and in such a case, before the local temperature is altered, a correct diagnosis is difficult, if not impossible.

It would follow from these statements that in prescribing treatment early and before there is any mechanical interference in the joint movement, the prognosis should in the majority of cases be favorable; while, when the articular surfaces are already affected, the prognosis should be reversed. We know that for old ringbones firing is not very successful; ankylosis is difficult of production because of the difficulty of destroying

so large and deep-seated articular surfaces as those of the coronary joint.

Spavin.—Opinions are at variance as to whether spavin, *arthritis chronica deformans* of man, commences peripherally as a *periostitis*, or centrally as an *osteo-arthritis* of the hock bones. Does the lesion progress centripetally or centrifugally? Most veterinarians are inclined to the former view and for this purpose I have examined about 40 specimens, which have been collected promiscuously at various times. I shall not here refer to the mechanism of the causation of hock diseases.

Upon these specimens the following alterations were observed :

7. No exostosis. Occult spavin—ankylosis of the scaphoid and large cuneiform.

11. Ankylosis scaphoid, large and small cuneiform.

10. Ankylosis scaphoid, large and small cuneiform and metatarsus.

7. Ankylosis scaphoid, large and small cuneiform and cuboid.

The remaining were of miscellaneous coössifications—between the astragalus and calcis, astragalus and scaphoid (least frequent), the entire tarsus, etc.

In all cases accompanied by an exostosis the inter-articular lesions were well advanced ; and in no case, excepting one, and this was excessively doubtful, was there any peripheral deposit with a normal state of the articular surfaces.

The general order in which, from these observations, the hock bones became affected was as follows: The scaphoid and large cuneiforms, the three internal bones of the lower row, the lower row and the metatarsus, and finally the three internal bones of the lower row with the cuboid of the same row. If I am correct in making these deductions, the lesions of spavin should commence as a scaphoido-large cunean arthritis and, contrary to the frequent assertion, the small cuneiform was not the seat of the primary lesion. The so-called "occult" spavin may therefore be a variety of spavin in its usual sense when the

lesions remain in that condition for a more or less long time or, merely the beginning of a condition that spreads to other bones and subsequently manifests itself by an external enlargement. The time required for the latter to become visible on the exterior is usually said to be from six weeks to two months. Spavin therefore seems to develop eccentrically, beginning within the internal bony structure and the articular surfaces.

We cannot deny the probability of spavin commencing as a periostitis in cases of traumatisms and hyperextension of the internal ligaments of the hock joint, but that this is not the general mode. It also appears to me that these are not the usual causes, but that the latter operate incessantly at every step the animal takes in the form of constant concussions transmitted through these bones, the perpendicular pressure of one bone upon the other and the traction of the interosseous ligaments. Relative to inheritance in which there is a defect in the organization and integrity of the intimate structure of bone—an osteitic diathesis—the hock bones are subjected to the injurious effects of these constant causes and thus become diseased more readily.

Very recent cases of undoubted hock lameness without visible external alterations often respond to the effects of a good blister. Having said that such diseased conditions of the hock are primarily articular, I do not mean to convey the idea that the blister cures by producing ankylosis, such as cauterization does. These cases only present a sort of nerve irritation, the primary symptoms of inflammation without any decided structural changes, and the treatment is efficacious through its revulsive action, a possible reflex action through the nerve trunks in correcting the pain and the circulation, and the immobilization of the parts.

From a comparison of the external aud internal lesions of ringbone and spavin we find the conditions in the two reversed, the former developing from without to within and the latter from within to without, the enlargement of the hock being secondary. While some of the distinctions which I have here

made may not be mathematically as accurate as you may be led to believe, they appear sufficiently conclusive to warrant the general deductions and to form a fair conception of the pathology.

Chronic arthritis of the tarsus seems to be more amenable to treatment—ankylosis—with the actual cautery than the same lesion on the phalanges: The cautery can be brought in more direct contact with the seat of disease, the bones of the hock are porous and vascular, the articular surfaces are covered by a thin layer of articular cartilage and probably more readily exfoliated, the bones are in almost immovable and in very close apposition and have a paleontologic tendency to diminution from coössification and a disappearance of the individual bones of the anatomic foot. The last fact may be pertinent from a medico-legal point of view. I read an account of this kind in the *Revue Vétérinaire*. The subject was a young mare. When the bones were cleaned several of the hock bones were neatly coössified, although at no time during life, as far as could be learned, was there any knowledge of lameness. I have seen such a co-ossification of the astragalus and the os calcis in the hock of a horse in spite of the gliding movement that exists between these two bones, and no deformity could be seen on the surface. I know nothing about the animal from which it was obtained. Under any circumstance, a lameness, even though temporary, may accompany such a condition, and we are at sea when we endeavor to locate it.

In 1899 the meat from 25,640 horses was consumed for food in Austria.

There are said to be 224,000,000 head of live stock of all kinds in this country.

Our animal exports amount to $218,500,000, or one-third of the total exportation of the country.

To Loosen a Glass Stopper.—Soak a corner of a glass cloth in boiling water, and then wrap it round the neck of the bottle. The heat will cause the neck to expand, and then the stopper may easily be removed.

HAEMORRHAGIC SEPTICAEMIA IN CATTLE.

By C. Brown, V. S., Neillsville, Wis.

I have had for the last fifteen years in the northwestern part of this State much trouble with cattle with a fatal disease. I recognized three forms of the disease—acute, subacute, and chronic. Not being able to find any bibliography on the subject until recently, I first thought it some form of septicæmia. My joy cannot be imagined when I read a full report by Dr. Fenimore, of Tennessee, and another by the Minnesota State Board of Health, from which I write some of the history of previous outbreaks. In nearly every month in the year for many years I have under my observation isolated outbreaks of some form of this disease. Some farmers come to me with the history that they found some stock dead in the pasture or their cattle had a swelling in the neck and their legs were sore like scratches in the horse. In the months of July and August last year there came under my direct observation fifty-three cases of this disease, most all in the acute form. As I had an opportunity of observing the clinical symptoms and post-mortem lesions of many cases I report them. I may add that the acute form of this disease very much resembles gloss anthrax, in my estimation, —as I had an opportunity to observe both diseases side by side last year, as both were prevalent in this section. I observed the two diseases clinically, microscopically, and held post-mortems on cadavers of cattle from both diseases at one time. I find in the acute form in some cases the clinical symptoms are identical with gloss anthrax; the only way I can differentiate between the two is by post-mortem and microscopical examination. General symptoms in the acute form of rinderseuche in Wisconsin are a rise in temperature (41 degrees C.); swelling of the throat and neck, angina, ecchymosis of the mucous membranes, and a hæmorrhagic diarrhœa; eating but little; grinding the teeth, swelling of the tongue, staggering gait, hair-pin feathered epistaxis; in milking cows complete agalorrhœa and quivering of the muscles of the flank, lying with the head to the side,

very dull cast of countenance, weeping eyes, saliva stringing from the mouth.

Symptoms in the chronic form of rinderseuche: Loss of appetite, constipation, increase of temperature at first. The animal gets very anæmic; the temperature drops to normal, the mucous membranes become very pale; constipation is followed by diarrhœa; the fæces are frequently stained with blood; the intestines are more or less distended with gas; an œdematous swelling hanging from between the lower jaws. This symptom with a hæmorrhagic diarrhœa is almost characteristic. In some cases extensive œdema of the head, neck and lower part of the legs; the hair is stiff and desquamation and ulceration in the region of the pastern.

Course of the acute form, death in from 24 hours to 7 days. Course of the chronic form, 7 days to five months.

Post-mortems in General.—In removing the skin large and small hæmorrhages disseminated through the muscles, large and small hæmorrhagic tumors, infiltrated with serum, are abundant in the subcutaneous connective tissue and penetrating the muscles. In opening the abdominial cavity the viscera and intestines always showed large numbers of ecchymotic areas, while the subcutaneous tissue was infiltrated with a serous exudate. The mucous membrane of the tongue, larynx, and pharynx and the lymphatic glands of these regions were swollen and infiltrated with bloody serum.

History of Previous Outbreaks.—Friedberger and Fröhner say this disease is not so recent as might be believed. A terrible epizoötic was described in the *Veterinarian.* In 1858, an epizoötic which decimated the bovines was nothing else than the disease in question. In 1878, Bollinger described under the name of "Wild and Rinderseuche" an epizoötic disease which killed 234 boars and 153 deer in the royal game preserve in the environs of Munich. After the plague in the park had died out, the domestic cattle in the neighborhood began dying of the same, or a very similar disease. The disease was sudden in its onset and rapidly fatal, death occurring in most cases in

from 12 to 30 hours; ninety per cent. of the affected animals died. Two forms, an exanthematous and a pectoral, were described. In the former there was a rise in temperature to 42 degrees C.; swelling of the face and neck, stomatitis, glossitis; cyanosis and ecchymosis of the mucous membrane and diarrhœa, with blood-streaked pieces. Death occurred in from 12 to 60 hours. In the pectoral form, which was not observed in cattle, there were signs of pneumonia and pleuro-pneumonia, death resulting in from 5 to 8 days.

Bacteriologically, Bollinger demonstrated only that anthrax bacilli were not present and that the disease was inoculable to cattle, horses, pigs, sheep, goats and rabbits. In 1885 Kitt studied an outbreak of an unknown epizoötic disease of cattle, pigs, etc., in Simbath. He isolated a short polar staining bacillus, non motile, growing best anarobically in broth at incubator temperature, not liquifying gelatine and inoculable to cattle, horses, sheep, goats and rabbits. In the blood preparation collected in 1878 (consequently preserved seven years from the case which has been described by Bollinger) Kitt found bacilli morphologically the same as those from the Simbath outbreak. Johne confirmed Kitt's observation on material and culture furnished him by Kitt. Huppe from specimens received of Kitt also confirmed the latter's statement and identified the bacilli with those shown by Semmer, Perroncito, Toussaint, and Pasteur, to be the cause of European chicken cholera; those described by Koch and Jeffky as producing septicæmia in rabbits, and these Loffler and Schutz had found to be the cause of schweineseuche, or German swine plague. Huppe proposed the name "Bacillias Septicæmiæ Hæmorrhagicæ" for the members of the group and his observation and classification have been corroborated by a number of later observers.

In 1889 Jensen in Jutland described an infectious disease among calves—sixteen animals which died after showing symptoms of fever and diarrhœa. Post-mortem: phlegmonous œdematous swellings were present in the subcutaneous tissue; marked hæmorrhages were present throughout all the organs;

fibrinous pleuritis, pericarditis and gastro-enteritis were present in many of the animals; the blood was well coagulated and not very dark. The spleen was swollen. In the blood and in the organs were found small ovoidal endstaining bacilli which when isolated and studied in pure cultures were indistinguishable from those causing chicken cholera, rinderseuche, swineseuche, etc. Rabbits and mice succumbed to injection in forty-eight hours, guinea-pigs in eight days; one steer died in about thirty hours after a subcutaneous injection, and showed serogelatinous, in part hæmorrhagic infiltration of the subcutaneous and intramuscular tissue at the point of inoculation; numerous hæmorrhages in all of the organs, hæmorrhagic swelling of the lymph glands and enlargement of the spleen. Chickens inoculated subcutaneously died after eleven days and showed necrosis of the liver. For the solution of the question whether these similar diseases in various animals (rinderseuche, swineseuche, chicken cholera, etc.) are but forms of the same disease, Jensen inoculated six chickens with small doses of the bacteria of the calf disease. Four to six weeks later the same birds were inoculated with large doses of chicken cholera bacilli, whose virulence was shown by control inoculations in chickens. The fowls previously inoculated with the calf disease bacilli, showed no symptoms; thus apparently proving that immunity to chicken cholera in chickens had been established by vaccinal injections of *bacilli bovisepticus*.

I could relate many more reports of outbreaks of this disease from this most complete report from the Minnesota State Board of Health.

THERE are about 18,000 trotters with records of 2:30 and better.

RANGE HORSES from Colorado, Wyoming, Idaho, Montana and Oregon are winning praise and popularity in England. Broncos of the type that speculators were canning for export three or four years ago are now being used in England for polo and the hunting field. English critics say they are natural jumpers and as handy as cats, in addition to being hardy and of fine fibre.

THE HORSE'S FOOT.

By James McDonough, D. V. S., Montclair, N. J.

Read before the Veterinary Medical Association of New Jersey, at Trenton, January 9, 1902.

Mr. Chairman and Gentlemen: After first thanking you for this privilege, and apologizing for my inability to treat with so important a subject, I will state that the object of my paper is to create a discussion on that long neglected, and very important organ—the horse's foot, and its shoe of nature—the hoof. I know that for several reasons this has always been a very complex subject for veterinarians to deal with. First of all, owners are not conscious of the fact that most lameness and injuries to the limb can be traced to the foot.

Second, they do not know that a horse is lame, unless he is lamer in one leg than in the other. In other words, unless a horse travels with a perceptible limp, our most humane people will compel him to go unconscious of his sufferings.

Third, it has long been the custom for the care of the feet to be left to the farrier, and as to just where his duties end, and those of the veterinarian begin, has always been a problem that neither could solve.

As to the first cause, we are responsible for its existence. If we are called to see a lame horse, and find him suffering with a sprained tendon or ligament, a soreness of some muscle or muscles, bony enlargement, etc., we do just what any owner or groom would do, simply treat the part affected, which in most cases they have found and suggested the same treatment that we will apply, and oftentimes will themselves apply it with just as satisfactory results.

Now, we as veterinarians know that that cause of lameness was in itself an effect, and, it is our duty to find and remove its cause. For by so doing, we not only prevent a recurrence of the trouble, but we satisfy the owner that our knowledge of those things is superior to his, as the condition can oftentimes be relieved and permanently so without the application of any treatment to the parts affected, but by simply removing the

cause, a service that can only be performed by the veterinarian, who has a knowledge of the anatomy of the foot and limb, and the physiology of motion.

The second cause can easily be overcome, after having successfully removed the first, for in most cases the owners, after once convinced that a condition could exist unnoticed that would result in an injury to the limb and lameness, will seek our opinion of their other horses, when we can advise them of their condition and by our skill relieve them, and allow them to travel with a freedom that will be noticed and appreciated by the owner.

The third cause—it is the duty of the farrier to perform the work of horseshoeing. There is no one who can take his place, and it is far from my object to make little of his service. He is held responsible for all kinds of lameness, and whilst I do not wish to infer that they are entirely blameless, I do say with authority that there would be more lame horses if the judgment they exercised was commensurate to the pay they receive.

As to where his duties end and those of the veterinarian begin, why, they end just where his knowledge of the subject ends, and it is right there where the veterinarian's begins. Their duties are different and distinct. The one must not become a consulting shoer, and the other cannot be considered a consulting veterinarian. But to get back to the subject of my paper, and make clear its object, we will consider the relation of the hoof to the foot, and their relations to the rest of the limb.

The shell, as we know, surrounds and protects the foot just as our shoes surround and protect our feet. It is the shoe of nature, in the full sense of the term, and it is fitted so nicely and accurately to the foot as to permit of no alteration in its shape without causing pain and discomfort to that most sensitive organ. If this statement be true, we have only to notice the distorted shape of nearly all hoofs to form some opinion of the suffering endured by those animals who are powerless to relieve it. They are not even allowed to rest that they might lessen it. They manifest unmistakable symptoms of pain.

They go sore. Point first one foot, then the other. They move along, oftentimes under the whip, with little short steps. But it is only when the pain of one foot is more intense than that of the other, which causes them to limp, that we respond to their pleadings for relief, and then only to the extent of restoring the crippled limb to its former usefulness.

But our duty does not end there. We should know that the shape of that hoof cannot insure comfort to the foot, and it becomes our duty either to shape it, or to direct the performance of that work.

The relation of the foot to the limb and the different parts of the limb to each other, depends entirely upon the shape of the shell. This I wish to make plain.

We know that the possibility of a crooked and flexible column of bones to support the weight of a horse's body, depends upon the relation of one to the other, and the support they receive from the muscles, tendons and ligaments, that enter into the formation of the limb. We also know, that if we place a column of bones in a vertical position, with the first firmly attached to a base, that the relation of the ends of those bones to each other will depend upon the shape of the base and its position upon the ground, and as the hoof forms the base of this complex column of sensitive tissue, we can readily see that any alteration of its normal shape can only result in an injury to the limb.

But man has altered all of them. You probably have but few normal-shaped hoofs in this city to-day. And the only reason that more horses are not lame is because the work they perform does not tax the distorted limb to the limit of its endurance. But whilst it is only reasonable to suppose that the limbs were intended to perform work proportionate to the other organs —heart, lungs, etc.—yet we know if subjected to violent exercise, such as trotting or running, the legs or feet are the first to give out. In fact, it is generally believed by owners of fast horses, that their limbs are unequal to the task of performing this work. And yet, I do not know of a single injury to the

limb below the knee, unless from some external cause, that the cause cannot be traced to the hoof, and must be removed before the injury can be permanently relieved.

If we are called to see a horse suffering with some injury to a muscle, tendon or ligament, not traceable to any external cause, we must account for it in one of two ways: that it was either unequal to the task of performing its work, or there was imposed upon it more work than it was intended to perform. As to which it was, we can be reasonably sure, by examining the same part of the opposite limb, and finding it free from injury.

But if the work of this part of the limb has been increased, that of some other part or parts must have been lessened to the same extent. And as this transfer of work from one part of the limb to another can only be caused by a change in the relation of the parts to each other, and as we know the relation of those parts depends upon the shape and position of its base—the hoof—it would seem that we would have to seek relief for our trouble at that point.

Again, it is an undisputable fact that owners of some runners have been known to wait for their quarters to break before expecting them to win a race. And there is no question but some of those horses have run faster with broken and bleeding quarters than they could with the hoof intact.

Now, anyone knows that the breaking of that hoof, and the rupturing of that most sensitive tissue—the laminæ—causes pain to the animal. But the pain it caused was less than that caused by the distorted shape of the hoof which was responsible for the quarter-crack.

But, gentlemen, I know that I have taxed your patience to the limit of its endurance, and will conclude by thanking you for your kind attention, and requesting a liberal exchange of views upon the subject of my paper.

THE severe street conditions this winter in the cities have made much work for veterinarians.

METRO-PERITONITIS.

By James M. Reed, V. S., Mattoon, Ill.

Read before the Illinois Medical and Surgical Association, at Decatur, Jan. 10, 1902.

Metritis may be limited to one or more of the internal layers of the generative organs, or it may extend to its outer covering; the peritoneum may produce certain symptoms which may be called metro-peritonitis. Inflammation of the uterus and parturient septicæmia may ensue very soon after birth, rarely before the second day with the cow, and seldom beyond the eighth day; with the mare and bitch may be more retarded. The temperature increasing is the first indication of disease, and within twenty-four hours the rise may be as much as two to three degrees. At the commencement of the rise there are well marked rigors; the animal becomes dull and loses its appetite, the pulse small and hard; may increase in the mare and cow to one hundred per minute; the respiration is hurried and shallow, the mouth hot and pasty, and the mucous membranes injected. The horns and ears are very warm, the animal grinds its teeth and betrays the existence of colicy pains.

When metro-peritonitis is fully present there always occurs symptoms very rapidly of an effusion of serum into the abdominal cavity in large quantities. The abdomen becomes enlarged and round, as if the animal had been feeding freely. The course of metro-peritonitis is generally very rapid and may not occupy more than a few days, usually three or four days and rarely five or six days. In such cases death may be due to the violence of the inflammation and its extension to the peritoneum, gangrene of the uterus, or to septic infection by absorption of the putrid matter in the uterus and general poisoning; therefore, when recovery appears to be progressing favorably relapse may occur.

The predisposing causes of metro-peritonitis are septic infection following absorption, or peritonitis by infection of the genital canal, or infection of the uterus during birth, or exposure to cold.

Metro-peritonitis being a grave disorder and liable to be produced by any wound or abrasion in these parts, the genital canal should be thoroughly cleansed by injection of warm water, and any wounds dressed with antiseptic remedies. After the uterus has been cleansed an injection of carbolic acid solution should be made every day, and the wonnds, if accessible, must be dressed at the same time. Constitutional treatment must be directed towards neutralizing the effects of the septic matter by the exhibition of antiseptic remedies and reducing the temperature. I would recommend sulphite of soda and potassa or sulphurous acid. If there is a tendency to constipation a purgative should be given. I have had good results from this treatment when there was any possibility of recovery.

ERRATUM.—Dr. T. J. Menestrino, St. Louis, Mo., writes to say that in his article entitled "Acute Rheumatism in the Horse," which appeared in the February REVIEW, the dose of iodide of potassium was given as "*two ounces*," when it should have read "*two drachms* three times a day."

PUT ON GUARD.—"Yes," said the fairy prince, "you may have whatever you want for a present." "I will choose," said the fortunate person, "either a wife or an automobile." "How foolish!" exclaimed the fairy prince. "Why do you not select something that you can manage?"—*Judge.*

THERE is a band of nearly 1000 wild horses roaming the hills and ranges of Southern Oregon, which have been increasing in number for nearly twenty years. They originated in horses that strayed from the ranges, and some that were turned loose by parties when the great scare came on about the trolley cars and bicycles taking the place of horses. In this way some good blood got into this stock, and now efforts are being made to capture them.

FIRES DAMAGE VETERINARIANS.—The recent series of extensive conflagrations in the East have included as their victims two well-known members of the veterinary profession. The fire which almost swept away the heart of Waterbury, Conn, took all the instruments and other paraphernalia of Dr. Robert C. Jones, while the $10,000,000 blaze in Paterson, N. J., left only the walls standing of Dr. Wm. Herbert Lowe's commodious and well equipped infirmary on Ellison Street.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

ANTE AND POST-MORTEM REPORT OF A COLT INFESTED WITH GASTROPHILUS EQUI AND STRONGYLUS ARMATUS.

By WM. SCHUMACHER, M. D. V., Stevens Point, Wis.

The latter part of June I was called out to see a colt kept in a marshy pasture along the Wisconsin River. On arrival found a two-year-old filly of good breeding, struppy looking, with very long hair, paying no attention to what was going on, chewing on grass in what seemed a semiconscious manner. The attendant reported that the filly had been found down on several occasions, unable to get up without assistance, and sometimes showing colicy symptoms. Examination showed the membranes dirty white, pulse 35 and almost imperceptible; temperature 37° C., respiration 12 and very shallow; evinces pain on palpation of abdomen; peristaltic sounds two and one-half to three minutes apart. Diagnosis: Inanition anæmia due to poor food and worms. Told the owner to destroy the animal as I considered it in a dying condition. The owner decided to remove the filly to his stable in the city, which was done by loading it on a wagon as it was unable to walk any distance. Was called again two days later and found it down in the stall. Another veterinarian had been treating it with large doses of tr. nux vomica and had placed it in a sling, but was unable to retain it in the apparatus. Told the owner again to destroy it and he finally consented.

Post-mortem: Almost total absence of blood when cutting through the abdominal muscles and hardly any blood is found throughout. Gelatinous, yellowish infiltration of the subcutaneous tissues. The bowels are of a bluish color, the walls about one-eighth of an inch thick and contain only traces of food. The stomach contains about a pint of almost dry grass. Its walls are covered with the larvæ of the *Gastrophylus equi* as thick as shown in the illustration of "Bull. No. 5, B. of A. I., 1896." The peritoneum is of a blue color and between the two layers are found pinworms, *Strongylus armatus*, in large numbers. The kidneys are enclosed in a capsule of thick pus alive with the worms, which are also found in the kidney substance

and a few in the bladder. A few worms are also visible loose in the abdominal cavity and in the large bowels.

Some weeks later another colt which had been kept in the same pasture, belonging to two druggists of this city, became sick and was treated by the owners until death. I held a post-mortem on the sly and found almost the same lesions as in the first case.

Am treating at present a six-months-old filly, which has also been running in the same pasture, with the following symptoms: Has occasional attacks of colic, after which it passes some pinworms, looks very emaciated, hair standing erect, pulse and temperature a little below normal, membranes cyanotic, mucus of mouth sticky, appetite capricious, shows great pain on palpation of abdomen, peristaltic sounds very loud and frequent, bloody watery diarrhœa with the odor of a dirty pig pen in summer, alternating with constipation. The animal has been very lively all summer, but now appears very weak and sleepy. *Diagnosis:* Helminthiasis, but may be extended into chronic gastro-intestinal catarrh leaning towards enteritis, also peritonitis, nephritis and cystitis.

TUMOR AND SCIRRHOUS CORDS.

By A. W. Baker, Brasher Falls, N. Y.

Case I.—A thoroughbred Jersey sold at a very low price on account of the presence of a large tumor on the anterior surface of the carpus. I was called to examine her, and advised an operation.

The operation consisted in the removal of the tumor, which weighed twelve pounds and six ounces. In the centre of the tumor was an oval-shaped blood-clot about the size of a goose egg, and surrounded by a membrane so tough that it could not be torn with the fingers. The dry clot dropped from the cavity when liberated. The strip of skin removed was sixteen inches long and nineteen inches wide, tapering to a point above and below. The field of operation was first cleansed with creolin solution and the wound sutured, after bathing with corrosive sublimate solution (1 to 1000). After-treatment consisted in placing the animal in slings and keeping the wound saturated with creolin solution for three weeks. During this time fresh dressing was applied but twice, after which the discharge of pus was very slight.

The wound healed by granulation and with no swelling of the leg. The operation was performed in October, and now

the knee has its normal smoothness. I would like to know how to account for the blood-clot at the centre of the tumor, and, if any other veterinarians have had similar cases in their experience, I would be glad to hear about them.

Case II.—In reply to Dr. Johnson, of Sioux City, Iowa, in regard to cases of scirrhous cord in horses, I had two cases last spring, one four, the other two years old. The owners thought my price too high for castrating, so a harness-maker was employed to operate at one dollar apiece. As result, both had scirrhous cord on each side, within four weeks' time of castration.

I injected cocaine at several points in the field of operation, and from the four-year-old one cord weighed four pounds, the other two pounds and four ounces. I only used creolin solution with cotton batten well soaked and redressed every day. The large colt was used every day following the third after operation.

ABDOMINAL LESIONS WITH RECURRENT COLICS.

By HUGH THOMSON, Newman Grove, Nebraska.

I send description of a case treated first during the summer of 1900. Symptoms present at that time were as follows:—Pulse and temperature normal, anxious expression of countenance, would eat a little and then stop to paw in one corner of the stall.

Diagnosis: Catarrh of the intestines. Gave calomel and aloes ball and left homeopathic dilution of nux vomica. Pain subsided, and two days later animal was turned to pasture.

In the fall animal was taken up and used as a saddle horse for hunting, stayed well all the fall of 1901, when after feeding for two weeks on wheat-straw and oats the same symptoms as before appeared. Gave same diagnosis and treatment. The animal apparently recovered, was sent to pasture and was all right for a month. A week after taking up, the mare was again taken sick. She would sit on her haunches like a dog, with frequent intervals of rolling, and turning head toward either flank. Urine passed frequently, about half a teacupful at a time, of a mucilaginous thickness, and color of flax-seed tea. Pulse 60 and fluttering. Temperature just above normal. No appetite nor thirst; bowels had moved regularly; abdomen tucked up. Diagnosis: Calculus or some growth of the intestines. Prognosis unfavorable. Treatment: Arecoline, gr. j, hypodermically, produced a free evacuation from the bowels. Left gin,

buchu and uva ursi for kidneys. The pain ceased, urine cleared up and animal ate bran mash and drank water. Continued well for two days, when I was called in the evening, finding animal suffering considerable pain. Gave morphine injection, which quieted the animal. Waited one hour, and as pain did not return, I left, with word that I would be around in the morning to get her hide for a robe and hold post-mortem. The hide is being tanned. Post-mortem appearances were healthy except the concave part of the pelvic flexure of the large colon, for sixteen inches, which was black and about six inches thick, there being some pus of an offensive odor; also, numerous fibrous branches running in all directions.

PUNCTURED WOUNDS OF THE ABDOMEN.

By E. H. KOHLER, D. V. S., Easton, Pa.

Case I.—On the evening of July 9th, 1901, a suckling colt jumped upon a picket fence and ran one of the pickets into his abdomen; the bowels protruded, but were replaced by the owner and held in place by a broad bandage. I was then called. Upon arrival the colt was bright and active and not a particle distressed. He was cast and his hind parts raised. With the aid of a poor lantern and the help of the farmers I removed the bandage and examined the wound. It was an opening one and one-half inches long, situated about four inches from the median line, and about four inches in front of the stifle, running obliquely inwards and forwards. The skin was incised for another inch to allow us to replace the bowels, which was done quite easily. The ruptured muscle was then sutured with silk, as was also the skin, the wound dressed with mild antiseptics, and the colt allowed to rise. Upon rising he showed a little distress, but I gave him a few doses of opiates. Next day the distress had disappeared, temperature and pulse nearly normal; was sucking the mare. Have not since seen him, but was informed by the owner that it healed without any complications in about two weeks.

Case II.—On July 20, 1901, a two-year-old colt punctured his abdomen behind the sternum and a little to the left of the median line, with an elder stalk, which broke off and remained in until pulled out, after which part of the omentum and a quantity of serum followed. The stalk was three and one-eighth inches long and five-eighths of an inch in diameter. The omentum that followed was amputated, the wound dressed

with mild antiseptics. A little pain was present after the dressing, but opiates soon relieved it. I saw it the next day; temperature and pulse nearly normal; was eating and apparently well. Healed without any further trouble.

A CASE OF EQUINE RABIES.*

By ROBERT DICKSON, D. V. S., New York City.

On Monday morning, Jan. 20, I was called to see a horse for lameness. On arrival I found a clipped bay gelding, 15.3 hands high, 9 years old, weighing 900 lbs., suffering from some nervous trouble. At first glance it appeared to be an affection of the brain, but as the symptoms were rather peculiar, I inquired very carefully into the history of the animal, which was as follows: On the Saturday previous the horse went suddenly lame while driving, and the driver treated it as best he could, regarding the cause as a strain of the tendons. The next morning he observed that the horse acted very queerly in backing out of the stall; and thinking that the cause might be a nail prick, sent for the horse-shoer, who removed the near shoe, but in endeavoring to take off the right shoe he struggled so much that he became very nervous and excited, and it was impossible to raise the off foot from the ground.

Upon my arrival I found the animal's respirations to be 40, temperature 103°, and in a highly nervous state. In backing him out of the stall he would drag the front feet in the manner of a foundered horse, only between the intervals of backing and stopping he would thrash and paw at an alarming rate. I sent for the shoer to get him to raise the horse's foot, but upon approaching him he would become very nervous and tremble with fear, pawing and striking with first one foot and then the other, finally endeavoring to lie down, with his front feet out straight. He was put back in his stall, and inquiry developed the fact that he had refused all food since the day before. However, he would drink water, which caused him no excitement. I placed the patient under "expectant" treatment, with an unfavorable prognosis.

He rapidly grew worse, the spasms of excitement returning with the least provocation, becoming so alarming that all attempts at treatment were abandoned. He became furious, striking, biting, and breaking everything with which he came in

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* Read at the February meeting of the Vet. Med. Assn. of N. Y. County.

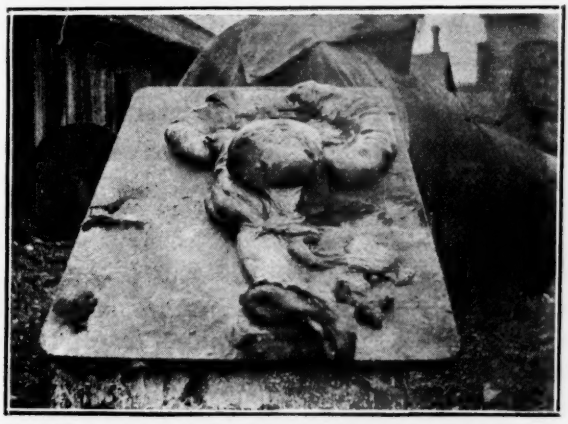
contact. On the morning of the 21st I ordered him destroyed, but he died in spasms before the officer arrived to shoot him.

I followed the cadaver to the dock, where I removed the brain and medulla, and, through the kindness of Dr. S. K. Johnson, they were sent to Dr. Cabot, of the Department of Health, who to-day (Feb. 5) reported his findings as those of true rabies.

OVARIAN TUMOR IN THE SOLIPED.

By W. S. CLARK, D. V. S., Bradford, Pa.

The subject was an eight-year-old mare, which, while suffering from colicy pains, was relieved by ordinary treatment; but as the intestinal murmur was absent, she received an ounce of aloes. Four hours later the pain had returned, but still there was no peristalsis, while the temperature was normal. I then administered hypodermically the usual dose of eserine and pilocarpine, and had the patient removed to my hospital. While this relieved her, the pain returned in the morning with exaggeration. Temperature now 102°, no peristaltic sounds.



On rectal examination I could feel a large round body on the floor of the abdominal cavity, but it was so heavy and so far away I could move it but little. The eserine-pilocarpine injection was repeated, but it did not produce a free passage.

The mare died in fifty-four hours after being attacked by pain, and during the last four hours her temperature was 104°.

The post-mortem showed a double loop of intestine around

a large ovarian tumor, there being complete strangulation and gangrene of the encircling intestine. The tumor is apparently fibroid, and filled with small cysts. It was attached to the horn of the uterus, the other ovary being normal in size.

ŒSOPHAGOTOMY IN A COW.

By GEORGE I. SMITH, D. V. S., Lexington, Mo.

A Jersey cow with a silver fork in her throat, the result of feeding slops, garbage, etc., was the subject. The cow had been in a declining condition for several weeks; profuse dribbling of saliva, and could swallow only soft mushy foods. Upon examination found a hard substance about the middle of the second third of the œsophagus. The skin being divided and considerable tissue broken down, the jugular vein was exposed and pushed aside, leaving the œsophagus in place as much as possible. Making a direct incision the handle of a fork was exposed and withdrawn. A prong of the fork had penetrated the upper margin of the œsophagus, which prevented it passing down or being regurgitated.

I sutured the œsophagus with catgut and the external wound with linen tape. Keeping her in my infirmary on strict diet, she was sound and well and discharged on the tenth day.

DEPARTMENT OF SURGERY.

By L. A. AND E. MERILLAT,
Chicago Veterinary College, 2537-39 State Street, Chicago, Ill.

B. SURGERY OF THE APPENDAGES OF THE EYE.

I. REMOVAL OF EYELASHES.—The indications for removal of eyelashes are distichiasis, trichiasis and entropion.

1. *Distichiasis.*—This is a term applied to a condition which usually terminates in trichiasis; it is accompanied by the doubling in of the eyelashes; there may be any number of lashes turned in, and sometimes one or more rows. As the condition progresses, the ciliary surface turns toward the eyeball, and finally ends in a typical case of trichiasis.

2. *Trichiasis* is a term applied to the doubling in of the entire ciliary surface, with the eyelashes rubbing against the eyeball. In some cases an entire row of cilia may be inverted and lie between the ocular and palpebral conjunctiva.

3. *Entropion* is a term used for a condition marked by the apposition of the external margin of the ciliary surface and sometimes the skin of the eyelid with the surface of the eyeball. Two forms have been recognized, viz., spasmodic and organic. The spasmodic variety is generally due to some deficiency in the obicularis muscle, usually of a reflex nature, resulting from inflammatory conditions of the eyelid or conjunctiva. The organic form is generally a sequel of injuries or chronic inflammatory conditions. Any of the above mentioned conditions which cannot be relieved or improved by the removal of eyelashes, should be subjected to careful surgical treatment.

The operation depends to a great extent upon the condition to be relieved or improved; if there is but a few lashes causing the trouble the procedure is comparatively easy, but if a large number are involved the procedure is more tedious. We will consider three methods of accomplishing it, each one having its special indications. These methods are:

(*a*) Epilation.

(*b*) Electrolytic removal of cilia.

(*c*) Scalping.

(*a*) *Epilation* is the most simple method of removing cilia when there are but a few causing the trouble or condition which is to be relieved. The only instrument needed is a pair of cilium forceps.

When cilia are removed with forceps they will grow again and eventually must be removed. This procedure, therefore, is not a curative measure and must consequently only be used to relieve the condition.

Operation.—The operator's hand must be thoroughly cleaned; the eyelid must be held with the left hand and the forceps in the right; the cilia are caught with the forceps as near to the skin and drawn out by gentle traction to avoid breaking. Only one cilium should be taken at a time. Epilation is a procedure used only for temporary relief, because the extraction of lashes does not prevent them from growing again; the only permanent cure is electrolysis or scalping.

(*b*) *Electrolysis.*—The electrolytic removal of eyelashes is accomplished by passing a mild current of electricity through an electrolytic needle attached to a suitable handle and the negative pole of a galvanic battery. The positive pole, consisting of a dampened sponge, is applied to some part of the patient's head after the needle has been applied to the root of the cilium, which completes the circuit. When the current is

completed a little whitish foam gathers around the needle, and after a few seconds the needle is removed and the eyelash taken up with a pair of forceps. If it cannot be extracted without traction, the needle must again be applied to the root until the lash can be removed without resistance. When the root is entirely destroyed the eyelash is loose and can be removed without resistance, and will be permanently destroyed. The operation leaves no cicatrix and does not disfigure the eyelid; for this reason it is the most reliable method of removing cilia.

(*c*) *Scalping* is a method of removing cilia by excising the entire ciliary border. In human surgery, scalping was often used, but has fallen into disuse during the last few years; the cause for this is the hideous disfigurement of the eyelid which always follows.

The instruments required are a pair of forceps; fine scalpel; fine curved needles; fine silk; lid-plate.

Operation.—The lid-plate is placed between the lid and the eyeball; the thumb of the left hand is used to pull the skin of the eyelid back, exposing the ciliary margin; make an incision in the ciliary margin as deep as the ciliary bulb; then make an incision behind the eyelashes and remove them with the triangular strip made by the two incisions. This strip must include all the ciliary bulbs, and can be held by a pair of forceps and dissected out with the scalpel. After the strip with all the bulbs is removed, the wound is thoroughly washed and sutured with fine silk stitches, which are allowed to remain in place for four or five days.

After-care.—The eye should be bandaged for the first three or four days; the wound examined every day, and dressed with dry absorbing dressings. If the stitches become infected the infected ones must be removed, and if necessary new ones applied to prevent gaping and bring the skin and conjunctiva in apposition. The operation always leaves a disfigured eyelid.

(*To be continued.*)

SURGICAL ITEMS.

"*Neurotomy*" *and* "*Neurectomy.*"—Why has the word "neurotomy" become obsolete in our literature? A few years ago "neurectomy" was seldom used, while to-day it is in universal use. Literally *neurotomy* implies division or dissection of a nerve, while *neurectomy* cannot be defined as anything less than the total ablation of a whole nerve, unless qualified by

some descriptive adjective. Such a term as "plantar neurectomy" leaves the impression that the whole plantar nerve is removed bodily, and therefore defines no feature of the operation as ordinarily performed. On the other hand, "plantar neurotomy" might mislead by suggesting that the nerve is merely divided, yet its suffix is sufficiently elastic in its meaning to cover every feature of unnerving operations. "Neurotomy" therefore should not be supplanted by "neurectomy." Medical and surgical technology may, and in fact does, very frequently respect an *adopted meaning* of a word, but it never tolerates the misapplication of words. Furthermore, in defending the word "neurotomy," it must not be forgotten that it is a perfect elucidation of the prime object of the operation, *i. e.*, the solution of the nerve's continuity.—(*L. A. M.*)

What is a Curb?—A curb is usually defined as a sprain of the calcaneo-cuboid ligament. This impression, widely accepted as it is, has been proven erroneous by Prof. Hughes, who has made a number of post-mortems with the object of revealing its true nature. Curb, according to Hughes, is a synovitis and not a ligamentitis. The seat of lesion is always found in the synovial apparatus intervening between the perforatus tendon and the calcaneo-cuboid ligament. In no case of curb has he found the ligament involved in the morbid process.—(*L. A. M.*)

A Nasal Dilator.—The troublesome œdema of the anterior nares occurring in purpura hæmorrhagica, infected wounds of the nostrils, burns, scalds, etc., which may threaten an animal's life from dyspnœa, is rendered less harmful by the application of spring dilators made of wire (Fig. 60). A wire sufficiently strong to form a spring when bent in the shape shown in the accompanying illustration, is adjusted into each nostril so as to support the nasal cartilages and thus admit the air more freely.

FIG. 60. NASAL DILATOR.

The loop *a* is attached to the halter over the nasal bones, and each angle *b* is introduced into the nostril on the opposite side.—(*Berlin. Thierarzt. Wochenschr.*)

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By ADOLPH EICHHORN, D. V. S., Bureau of Animal Industry, Milwaukee, Wis.

PURULENT CONJUNCTIVITIS, DUE TO THE ABSENCE OF THE LACHRYMAL OPENING OF THE LEFT NASAL DUCT [*Kuehn*].—Towards the end of February, the author was called to attend to a case with a history, that since the last three months there is a profuse, yellowish, thin, purulent discharge from the left eye, and that the flow of the discharge can be increased by taking a hold of the horse's chin and elevating its head in that manner. The examination revealed the correctness of the owner's statement, and the author found as cause of the stated ailment, the missing of the left lachrymal opening. At the place of the opening there was a slightly yellowish spot. The treatment consisted in the opening of the skin at this yellow spot corresponding to the diameter of the right lachrymal opening. After this was done a 35 cm. long, and 3 mm. thick hard rubber probe was inserted into the artificial opening, and in this procedure the natural nasal duct was reached. In inserting the probe, by a peculiar motion, at the depth of 10 cm. a slight obstruction was reached, which, in forcing through the probe, appeared to be thin bone plates. After overcoming this obstruction it was an easy task to force the instrument into the lachrymal sack. Soon after the operation there emptied quite an amount of discharge of a yellowish, thin, purulent character from the nasal opening. To prevent the closure of the artificial opening and for the treatment of the purulent conjunctivitis a catheter specially made for this purpose was given to the owner, which could be attached to a balloon syringe, with the direction to insert this several times daily into the nasal duct, injecting a 1 per cent. solution of sulphate of zinc. Complete recovery took place inside of 8 days.—(*Berl. Thierarzt. Wochenschr.*)

EXPERIMENTAL STUDIES AS TO THE HEREDITY OF TUBERCULOSIS [*Dr. F. Friedmann*].—Ever since the nature of tuberculosis was known, again and again the question is brought up as to whether it is possible to transmit the disease by the way of the placental circulation from the mother to the child, or if

there is a chance of infection of the ovum, through tubercular sperma, and in this manner causing a spreading of tubercular processes in the growing fœtus. Koch does not believe in the existence of hereditary tuberculosis, admitting only a certain hereditary predisposition. On the contrary, Baumgarten considers this disease just as hereditary as any other disease of a similar nature, and accepts the possibility of transmission from both mother and father, by means of the sperma. Virchow, on the other hand, considers the vitality of the ovum after infection with bacilli questionable. Johne arrived at the same conclusion, and declares it very improbable that such a delicate creation as the ovum could offer resistance to the influence of the tubercle bacilli. To decide the submitted question, the author cites next, the remarkably extensive literature on this subject, and concludes from the same that (1) a placental transmission of tuberculosis to the fœtus is a frequent occurrence, but that (2) still more frequently does a transmission of this infectious disease take place from father to child, as can be seen from numerous clinical observations made. *Tuberculosis of the father is ten times more dangerous for the children than that of the mother* (*Klebs*). To decide the last question in an experimental way, the author proceeded in the following manner: A few drops of a highly virulent tubercle bacilli culture in a mild soda solution, was injected into the vagina of a female rabbit, which gave birth a few hours previously. This procedure was immediately followed by an act of copulation, as these animals are most susceptible for conception directly after parturition. After 6–8 days the female rabbit was killed, the uterus with the containing embryo embedded in paraffine, and series of sections made, which were then treated with the regular tubercle bacilli stains (Anilin water, Fuchsin mixture, etc.), In examining these preparates derived from the embryo in the earliest state of development, as per above, there was found in all of them tubercle bacilli in small or large numbers, mostly inside of the cells, and in one case in the form of a whole colony. The mother animal proved to be entirely free of tuberculosis; a careful search for bacilli in the vagina and uterus was also fruitless, which corresponds with the observations of other investigators (Gärtner, Maffucci), and also with clinical observations. These bacilli seem to be eliminated from the genital canal in an unknown manner. As to the mode of entering of the bacilli into the ovum, the literature does not contain satisfactory explanations, especially in relation to the possibility of

carrying the bacilli with the spermatozoas. At present in this line investigations are carried on by Friedmann. At all events, through the careful and creditable work of the author, it is proved "*that tubercle bacilli which enter the vagina with the sperma can pass into the embryo without any intervention of the mother.*"—(*Zeitschr. f. Clin. Med.*)

A CASE OF ANORCHISMUS IN A HORSE [*C. Christensen.*]—The author was asked to undertake the castration of a cryptorchid, which is a very frequent operation in Denmark. After a rectal exploration of the horse, which gave a negative result, he on the following day operated. He entered the abdominal cavity with the whole hand, to the extent that he could feel markedly the left kidney. A thorough and careful search of the abdominal cavity as far as he could reach was made, but was unable to locate the testicles, and after an hour's tiresome work he had to give up the search, close the quite large wound and let the animal rise. In spite of the severe operative interference the horse was able without any difficulty to go into the stable, where he was tied up. The appetite was good, temperature normal, and in the first three days was apparently well. But on the morning of the fourth day the animal was found down, unable to rise without assistance. Helped on to his feet, he took some green food. Temperature remained within the normal borders, but the following morning rose to 41.2 °C. The stitches were opened to drain the collected secretions and the wound was cleansed. In doing this an intestinal sling was found in the cavity of the wound, already highly congested and œdematous, adherent, and was loosened from the wound only with great difficulty. In the neighborhood of the wound there was a sero-fibrinous exudate noticeable. Although the chances of recovery were very slight, efforts were made with suitable treatment of the wound and proper diet. On the following ten days the temperature fluctuated between 39.2° and 40° C.; the appetite was capricious, the appearance proportionally lively. Gradually the temperature became normal; at the same time intermittent colicy symptoms were observable, so that the general condition became worse. The animal taking up less and less food and losing strength to such an extent that it appeared to be cruelty to let it suffer any longer. 23 days after the operation the horse was destroyed, and an autopsy held by Chr. in the presence of two other veterinarians. *Testicles were not found at the autopsy.* Although the abdominal cavity showed considerable changes (partly organized exudates, adhesions of the in-

testines with each other, and with the abdominal walls, considerable of a sero-purulent exudate), which made impossible a regular minute autopsy. Chr. is of the belief with regard to the carefulness with which the slightest details were examined, to state the impossibility of the presence of a testicle, not even in a rudimental state. It is certain that there were no efforts made previously to this to castrate the horse, as on the one hand there was no marks visible of an attempted operation, and on the other hand Chr. was informed to that effect by the owner, who was in possession of the horse, since it came into the world. —(*Berl. Thierarzt. Woch.*)

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

THE ANTERIOR OR HYO-THYROID PHARYNGOTOMY IN SOLIPEDS [*A. Baldoni*].—The exploration of the pharyngeal cavity made through the mouth is exceedingly difficult, if not impossible, and by it the diagnosis of pharyngeal lesions is rendered very doubtful in many instances. It is to remedy the difficulties presented by the soft palate, which as a curtain separates the pharynx from the buccal cavity, that the author has resorted to the anterior or hyo-thyroid pharyngotomy. The operation is performed on the median line, and consists in the incision of the tissues covering the subhyoid region, and in the space bounded by the superior border of the thyroid cartilage and the posterior part of the body of the hyoid bone. The animal is either kept standing or thrown down, with the head kept in extension by a Bernadot & Buttel apparatus. After careful disinfection the skin is divided over the hyo-thyroid space, then the connective tissue underneath, the muscular layer formed by the subscapulo-hyoideus, and finally the hyo-thyroid ligament; when then by dividing or pushing aside the hyo-epiglotteus muscle and puncturing the laryngeal mucous membrane, the pharyngeal cavity is entered by the introduction of one finger—the soft palate in front, the epiglottis behind, and the mucous membrane of the pharynx above and on the sides. When the examination of the therapeutic indications are finished the wound can be left alone, cicatrization taking place in a very short time. Anterior pharyngotomy can be very useful in the diagnosis of morbid processes of the pharynx and surrounding

organs. Tumors, endo-pharyngeal cysts, fracture of the epiglottis, foreign bodies, parasites, special inflammatory processes, etc., can be made out, while without it their diagnosis could not be established until the post-mortem. Palpation, the use of the rino-laryngoscope, exploration with instruments, probangs, etc., are in many instances of little use. The usefulness of anterior pharyngotomy is also most advantageous in the treatment of pharyngeal diseases, and to mention only a few, aside from those of an essentially surgical nature, we have the removal of tumors, extirpation of foreign bodies, operation on the gutteral pouches, etc. Also the catheterization of the œsophagus, irrigations and spraying of the pharynx, etc. The objections which can be made against the operation are: (1) The division of the hyo-epiglotteus muscle; (2) the possibility of the formation of fistulous tracts; (3) the tumefied condition of the subhyoid region, which would interfere with and perhaps make the operation impossible; (4) the small size of the hyo-thyroid membrane. But all of these are of little value, and can be readily remedied. Prof. Baldoni has at present but few observations to relate on the operation which he recommends, but he has no hesitation in so doing, considering it as most simple, of undoubted advantage, without sequelæ, and most practicable.—(*Clinica Veterinaria.*)

CROUPAL ENTERITIS OF CALVES TREATED BY ELECTRICITY [*Dr. Egidio Graziadei*].—A calf of common breed had been suffering for several days with croupal enteritis, which seemed rebellious to all forms of treatment. The animal was so reduced in condition that he remained in the sterno-abdominal decubitus all the time. The history was brief and the cause of the trouble plainly made out. The mother not having enough milk, he had received additional food of hay, straw, cabbage, etc. He presented all the characteristic symptoms of the disease, but besides had excessive tympanites, sensitiveness of the intestines, and in the right flank could be felt a long body, sausage like, extremely hard, and that could not be made to move or get softer, notwithstanding rectal injections of soap. The condition of the animal was very serious and the chances of recovery so slim that the author advised slaughter. As it was a valuable animal (said the owner) he would not consent, and after thinking the case over, and failing to find any therapeutic agent to give the animal, his condition preventing any of the treatment ordinarily used, the author decided to try electricity. He had a small electric battery (a Spamer?); applied one of the poles on the loins,

and with the other passed it over the abdomen, the rumen, and over the sausage-like cord of the right flank. After ten minutes the calf passed a fair quantity of fæces, covered with croupal exudation. Drenches of white wine and repetition of the electric application brought on improvement. On the third day the animal had marked tympanites, which was relieved by puncturing and ammoniacal drenches. Electricity was again applied for four days, and recovery followed without further trouble.—(*Clinica Veterinaria.*)

CONTRIBUTION TO NEURECTOMY OF THE MEDIAN IN SOLIPEDS [*Dr. Pietro Ghisleni*].—Although this operation has entered into almost daily practice, there are yet many who object to it. Can it entirely take the place of plantar neurotomy, as some claim? What is the cause of its failure? Is it applicable to all forms of specific lameness? Has the anatomical formation of the plantar nerves something to do with the failures? All these questions have been studied by the author—principally the last one. He has made interesting anatomical researches, has carried experiments on many animals, and has made some clinical observations of value, which authorize him to draw the following conclusions: (1) That of the nervous fibres of the cubital only a part go to the foot, where they keep up a certain degree of sensibility; (2) that this degree of sensibility is more marked in the territory of the termination of the external plantar, and that as the clinic and the experiments have proved it, it is in lesions of the external half of the foot that median neurectomy answers; (3) that median neurectomy has many advantages over the plantar operation, one being to allow a certain quantity of its function to remain, although in limited extent; (4) that in cases of negative result with median neurectomy, one may resort to that of the external plantar as a means of removing what little remains as a result of the slight sensitiveness of the foot.—(*Clinica Veterinaria.*)

A CASE OF OBSTETRICS [*Dr. Luigi Filippi*].—Although not new, the rarity of the case justifies its publication. A four-year-old cow, which had been served some six months previous, exhibited some symptoms of abortion, except the expulsive efforts. For fear of bringing about a too early delivery, a rectal examination was made and a fœtus, partly engaged in the neck of the uterus, was readily made out. The examination per vagina revealed that abortion was going on. The fœtus was in the sterno-abdominal presentation, which was easily changed by the author, and a small fœtus of the male sex was removed.

The next day the cow seemed quite ill. She had lost appetite, had fever (40.8 C.), and was making expulsive efforts. As great care had been exercised during the manipulations of the day before, no lesion was suspected, but it was thought she was going to have puerperal fever, and treatment was prescribed accordingly, viz., vaginal injections of creolin and antifebrile doses of salicylate of soda. No improvement followed, and the following day the cow was much worse, the expulsive efforts returning more frequently. The caretaker then reported that during one of the vaginal injections a foreign body had been expelled and dropped on the bedding. What was it but a fœtal third phalanx. A re-examination of the first fœtus showed the cadaver to be perfect. A vaginal examination was made at once, and a bone resembling a tibia was extracted, and in the right horn of the uterus was felt an emphysematous oblong mass, floating in a very offensive syrupous liquid, and which was another fœtus. This was removed, the uterus disinfected by irrigation, and the cow recovered rapidly.—(*Il Nuovo Ercolani.*)

FOREIGN BODY IN THE MOUTH OF A COW [*Dr. G. Leoni*].—Since about forty days the animal has had on the left side of the face, extending from half of the masseterine region down to the inferior portion of the jaw, a swelling which has been growing more and more. It has been treated by an empiric without result, and now there are two fistulous tracts, from which pus is escaping. The growth is a little less painful and perhaps a little smaller. The examination of the mouth was quite difficult and demanded the use of a special speculum. When it was made, a foreign body was discovered on a level with the third molar. It had made its way partly through the mucous membrane of the mouth and was almost entirely surrounded by soft structures. With long forceps, however, a good hold could be taken of it, when it was extracted. It proved to be a triangular piece of slate ; one of the angles, quite sharp, rested on the third molar; another, more cutting, had penetrated the soft tissues ; the third, more blunt, was the one which had given rise to the fistulæ. The wound and the fistulous tracts were treated with disinfecting solutions of sublimate, and the animal recovered in a few days.—(*Il Nuovo Ercolani.*)

NOTES OF PATHOLOGICAL ANATOMY [*Dr. Garibaldo Lisi*].—These relate to three cases of cysts which were observed by the author at the slaughter-house at Carrara. The first was in a young calf. It was situated toward the point of the liver and adherent to it, attached to the Glisson membrane, and contained

275 cubic centimeters of fluid. The minute microscopical examination of the liquid and of the walls of the cyst excluded the supposition of its being a cyst of echinococci, and showed it to be an anomaly of formation—that is, a congenital serous cyst. In the second case, some fifty cysts were found in the abdominal cavity, attached to the omentum and to the serous covering of the rumen. Some were spherical in shape, others piriform. They contained a perfectly limpid fluid ; some were pedunculated, others spread over the walls of the organs. At first they were thought to be parasitic cysts, but no indications of echinococci could be found, and the conclusion was that they were the result of a cystic peritonitis, without gravity, and perfectly local. The third case, also not due to echinococci, was a transparent growth on the tricuspid valve of a calf. It was ovoid in shape, measured two centimeters in diameter, and contained a slightly straw-colored liquid. The presence of these three cysts and their nature, which differs from the usual parasitic nature, renders this communication interesting to veterinarians who have charge of meat inspection at slaughter-houses. —(*Il Nuovo Ercolani.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

LACERATION OF THE GRAVID UTERUS WITHOUT LESION OF THE ABDOMINAL WALL [*G. Drouet*].—These injuries are somewhat frequent in domestic females toward the time of parturition, because of rough or improper manipulations. They may also occur in connection with deep wounds of the abdomen, and, again, although rarely, from traumas of the abdominal wall, bruises, etc. Their prognosis is generally fatal. The author reports the result of an examination made at a slaughter-house upon the carcass of a ewe just killed, and in which an extra-uterine fœtus was found floating freely in the abdomen. The fœtus seemed to be in about its fourth or fifth month of development, and weighed 1500 grammes. It formed an irregular mass, with both fore legs stretched forward along the neck and head, the hind legs flexed under the abdomen ; it had no adherence to the abdominal walls, was floating freely, and united by little connective tissue bands to the intestines. When dissected its organs were found to be healthy, without odor or de-

composition. The uterus of the mother was of normal size, and on the superior face of the body presented an irregular cicatrix, the marks of which are also found on the internal surface, showing that all the membranes had been involved in the laceration. No trace of the placenta could be found, neither in the uterus nor in the abdomen of the mother. No history of the mother could be obtained.—(*Rec. de Med. Vet.*)

FRACTURE OF THE SPHENOID [*M.Drouin*].—Although well protected the base of the cranium is not free from fracture. The lesion is due to a traumatism acting at some distance and especially upon the occipital protuberance. The horse which is the subject of this observation frequently had attacks of staggers, his work was irregular, and when he was kept in the stable several days he would almost invariably fall down suddenly. Ordinarily when he fell he would drop on one side, and after two minutes could get up. At last, one Sunday morning he reared so violently that he fell backwards, the poll striking the pavement, blood flowing from the nostrils. In five minutes he was dead. At the post-mortem, made immediately, the sphenoid was found *entirely loose*, carrying with it a portion of the bacillar process of the occipital ; it had a perpendicular position to its normal direction, and in its displacement had cut the internal carotid and cavernous veins of the occipito-sphenotemporal hiatus. The posterior extremity of the large bony splinter had also entered the rachidian bulb, cutting the pyramids and the pons varolii. The gutteral pouches were filled with blood.—(*Bullet. de la Soc. Cent.*)

STRANGULATED HERNIA IN A PUPPY [*L. Colin*].—Three weeks after birth the little fellow had a hernia as big as a nut, but it grew quite rapidly, and in a short time was the size of a hen's egg. At first the dog did not seem incommoded by the tumor, but one morning he was taken ill, groaned, and his little abdomen became tympanitic. The hernial tumor was hard and painful to pressure, was irreducible, and did not give the sensation of the presence of liquids or gases. An operation was decided upon. The scrotum and vaginal sac being opened, the hernia appeared, formed by a loop of the small intestines, and presenting on its anterior extremity a gangrenous spot. There was another also on the posterior extremity, but it was less advanced. The intestine was opened and a hard mass formed of straw was found. After excision of the gangrenous portion and thorough disinfection the wound was sewed up, the hernia reduced, and the vaginal sac closed by a circular ligature. Low

diet, mucilaginous enemas of lysol were prescribed. The next day the puppy seemed comfortable, began to suck his mother, and in a few days was cured.—(*Rec. de Med. Vet.*)

MELANOTIC TUMOR IN A MARE [*M. Cagny*].—This case is reported as a record for an attempt at treatment by *interstitial injections of lactic acid.* It relates to a mare, aged 15, which became lame on the left hind leg. She was in good condition, no indication of pain, and stood well on both legs. After trotting 100 meters she showed no trouble, but if the distance was increased to 600 or 700 meters she became lame and gradually limped more and more to such an extent that after some time the lameness was such that she could not go any further and she was ready to fall. After one or two minutes of rest she would be able to resume work. During the attack the leg would be cold, the muscles of the side hard, tetanic like; respiration hard, nostrils dilated, seeming in great pain. After the attack the heat would return to the leg and the muscles resume their suppleness. By rectal exploration a tumor as big as the fist was found, attached to the sacrum, and involving the left iliac blood-vessels. The pulse, easily felt above the tumor, is imperceptible below it. The diagnosis was sure—a melanotic sarcoma interfering with the circulation of the left hind leg. Abandoned by the owner, it was decided to try interstitial injections of lactic acid, already mentioned, to arrest the growth and promote the melting of subdermic melanoma. These were made in the mass of the tumor, through the rectum, carefully disinfected. Five injections of one cubic centimeter each of pure lactic acid were made at various points of the tumor. At first the animal did not seem to suffer, except from slight colics, but after a few days the leg began to swell, standing upon it becoming more and more painful and difficult, and the size of the tumor increased, and the animal was slaughtered. The diagnosis was confirmed at the autopsy. A number of melanotic growths were found beside the one spoken of above. At the five points of puncture there were five cysts, containing eight or ten cubic centimeters of citrine serosity. Around them the tissues of the tumor were softened, of sticky consistency, and colored in black. With time, perhaps, the tumor having undergone this change in its whole structure, might have been resorbed and recovery or an improvement be obtained.—(*Bullet. de la Soc. Cent.*)

COMMUNICATION OF THE SINUSES WITH THE MIDDLE MEATUS OF THE NASAL CAVITIES IN THE HORSE [*Prof. Barrier*].—It is known that in normal conditions the sinuses of one

side of the head communicate with the corresponding nasal cavity by a slit, situated a little above the centre of the middle meatus. There are cases, however, where an opening is found large enough to introduce the finger. In other cases the opening will permit two fingers to pass. This the author attributes to an arrest of development of the base of the maxillary turbinated bone. In a specimen which he presents Prof. Barrier shows that in this case the abnormality is not due to an imperfect development of the maxillary turbinated bone, but to an arrest in the development of the base of the ethmoidal or frontal turbinated. Whatever may be the cause, the opening of communication is very wide, and leaves exposed the anfractuous cavity of the superior maxillary sinus.—(*Bullet. de la Soc. Cent.*)

PHLEBITIS OF THE JUGULAR AFTER PHLEBOTOMY—LIGATURE—RECOVERY [*M. Vivien*].—This is the history of a half thoroughbred mare, which, being taken with intestinal congestion with very violent colic, was bled with much difficulty at the jugular, five liters of blood being extracted. Notwithstanding the strict application of the after cares the animal had several successive hæmorrhages. The author values the quantity of blood at some 45 litres, without counting the first five taken at the therapeutical bleeding. There were complications of thrombus, of formation of several abscesses, the vein had become diseased, and the only chance of saving the animal was to ligate the vein at the point where the diseased process had not reached, a condition difficult to ascertain on account of the swelling and infiltrated condition of the parts. This, however, the author succeeded in doing by securing a ligature as far up as possible, viz., very near the point of junction of the jugular and facial. This stopped the further danger of hæmorrhages, the several abscesses along the vein were properly treated, and ultimately the animal recovered. From the severity of the case the author concludes: (1) Phlebotomy is not as anodyne an operation as many believe; even with ordinary care the sequelæ may be very serious; (2) when phlebitis exists and assumes the suppurative form, hæmorrhages must always be looked for, and to correct them sutures are useless; (3) ligature of the vein is the only radical and sure treatment to resort to, and that as early as possible.—(*Rev. Veter.*)

PREVENTIVE AND CURATIVE TREATMENT OF TRAUMATIC ARTHRITIS BY ANTISEPTIC DRESSINGS AND INJECTIONS OF ANTISTREPTOCOCCIC SERUM [*M. Pegus*].—After relating several cases of recoveries from suppurative arthritis and recent

articular wounds, the author gives the following conclusions: (1) With all kicks received on the hocks which may be followed by open joint, a permanent antiseptic dressing had better be used from the start. The temperature of the animal and his ability to stand on the leg, will give the indications to renew it; (2) in all developed arthritis, one must at once wash and drain the subcutaneous loose structures, antisepticing them with iodoformed glycerine, so as to avert a possible focus of suppuration, which would afterwards infect the synovial; (3) one must never forget that loose detached conditions is the rule; (4) do not allow yourself to be deceived by this subcutaneous tract, which may make you believe you have to deal with a wound without importance, where there is in fact an articular opening; (5) do not probe an articular tract without it is needed, and if so do it with the greatest care, so as not to infect the synovial or do severe injury; (6) leave the dressing five or six days longer than really necessary, to be sure of no late infection of the joint. Injections of antistreptococcic serum have given excellent results, and shorten the duration of the fever.—(*Journ. de Med. Vet. and Zoot.*)

POLYNUCLEOSIS OF RABIES [*J. Courmont and Ch. Lesieur*].—From the numerous researches which they have made on the numeration of leucocytes of the blood during the life and after the death of man, guinea-pigs, rabbits, and dogs affected with rabies, their conclusions in the application to the diagnosis of rabies are as follows: (1) During the incubation the study of the leucocytes cannot serve to recognize rabies; (2) the researches of total leucocytosis is not useful at any period of the disease; (3) confirmed rabies (from the beginning of the nervous symptoms) is always accompanied by noticeable polynucleosis. The absence of polynucleosis must discard the diagnosis of rabies. It is a negative sign, but one of the greatest value. On the contrary, the presence of polynucleosis cannot naturally be sufficient to make the diagnosis of rabies. Other affections are accompanied by polynucleosis.—(*Rev. Veter.*)

THE Humane Society of Washington, D. C., has notified Attorney-General Knox to lower the checks of his trotters. Mr. Knox has decided not to heed the notification and will continue to check his horses wherever he pleases. He has invited the society to bring the matter into the courts.

THE English Army requires between 18,000 and 19,000 horses in time of peace.

VETERINARY LEGISLATION.

NEW YORK.

In Assembly, No. 982.—Introduced by Mr. PENDRY—(by unanimous consent)—read once and referred to the committee on MILITARY AFFAIRS.

EXPLANATION.—Matter in Italics is new; matter in brackets [] is old law to be omitted.

AN ACT TO AMEND THE MILITARY CODE, ENTITLED "AN ACT IN RELATION TO THE MILITIA, CONSTITUTING CHAPTER SIXTEEN OF THE GENERAL LAWS."

The People of the State of New York, represented in Senate and Assembly do enact as follows:

Section 1. Sections twenty-eight and twenty-nine of article two of chapter sixteen of the military code is hereby amended to read as follows:

§28. Troops of cavalry.—A troop of cavalry, part of a squadron or battalion, shall consist of one captain, one first lieutenant, one second lieutenant, one first sergeant, one quartermaster sergeant, one commissary sergeant, one guidon sergeant, four sergeants, eight corporals, four artificers, two trumpeters, eighty privates. The minimum strength of such troop shall be fifty-one enlisted men. A troop not part of a squadron or battalion, shall consist of one captain, two first lieutenants, two second lieutenants, one assistant surgeon of the grade of first lieutenant, one first sergeant, one quartermaster sergeant, one commissary sergeant, one guidon sergeant, one veterinary sergeant, *or one veterinarian as herein provided*, four sergeants, eight corporals, two musicians, two hospital corps privates, eighty privates. The minimum strength of such troop shall be fifty-one enlisted men. *The governor may, on the recommendation of the commanding officer of a separate troop or mounted battery, appoint and commission a veterinarian to the grade of second lieutenant.*

§29.—Batteries.—A battery shall consist of one captain, two first lieutenants, two second lieutenants, one assistant surgeon of the grade of first lieutenant, one first sergeant, one quartermaster sergeant, one commissary sergeant, one guidon sergeant, one veterinary sergeant, *or a veterinarian as herein provided*, four sergeants, eight corporals, four artificers, two trumpeters, two hospital corps privates, eighty-four privates. The minimum strength of the battery shall be fifty-one enlisted men. *The governor may, on the recommendation of the commanding officer of a separate troop or mounted battery, appoint and*

commission a veterinarian to the grade of second lieutenant.

§2. This act shall take effect immediately.

In Assembly, No. 964—Introduced by Mr. GRAEFF—read once and referred to the Committee on AGRICULTURE.

AN ACT TO AMEND THE AGRICULTURAL LAW RELATING TO THE IMPORTATION OF CATTLE FOR DAIRY AND BREEDING PURPOSES.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Article four of chapter three hundred and thirty-eight of the laws of eighteen hundred and ninety-three, entitled "An act in relation to agriculture, constituting articles one, two, three, four and five of chapter thirty-three of the general laws," as amended by chapter three hundred and twenty-one of the laws of nineteen hundred and one, is hereby amended by inserting therein a new section to be known as section seventy-e and to read as follows:

§70-e. Importation of neat cattle; inspection.—Neat cattle shall not be imported into this state for dairy or breeding purposes, unless they are in a healthy condition. The person importing or causing such cattle to be imported shall present to the person to whom they are delivered a certificate that such cattle are in a healthy condition and shall file a copy of such certificate in the office of the commissioner of agriculture. Such certificate shall be signed and executed by a practitioner of veterinary medicine and surgery duly authorized or licensed to practice in accordance with the laws of the state from which such cattle are imported. Such certificate shall be in the form prescribed by the commissioner of agriculture, and shall state the name and residence of the person from whom such cattle were purchased, and of the person importing them, also the name and residence of the person in this state to whom they are sold, unless they are shipped into the state to be sold or resold in which case the certificate shall give name and residence of consignee and place of consignment, the number of cattle imported and a brief description of such cattle, the date of the examination, and such other matters as may be required by the said commissioner. Such examination shall be made within ten days prior to the importation of such cattle into this state. No practitioner of veterinary medicine and surgery shall sign any such certificate unless he shall have first filed in the office of the commissioner of agriculture certified evidence of his au-

thority to practice in the state where he resides and where the examination of such cattle is made. Such certificate of health shall be invalid and of no effect for the purpose of this act, unless signed by a practitioner of veterinary medicine and surgery who has so filed such certified evidence of his authority to practice in the state where he resides. Any person who shall import any such neat cattle for dairy or breeding purposes, without such certificate of health or any person who shall receive any such cattle without such certificate, shall be liable to a penalty of twenty-five dollars for each head of cattle so imported, to be recovered in an action brought therefor by the commissioner of agriculture in the same manner as in cases of other violations of the agricultural law.

§2. This act shall take effect immediately.

MASSACHUSETTS.

AN ACT TO ABOLISH THE BOARD OF CATTLE COMMISSIONERS AND CREATE A CATTLE BUREAU OF THE STATE BOARD OF AGRICULTURE.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same as follows:

SECTION 1. The board of cattle commissioners is hereby abolished.

SECTION 2. A bureau of the state board of agriculture is hereby created, called the cattle bureau of the state board of agriculture.

SECTION 3. The governor shall annually appoint a chief of the cattle bureau of the state board of agriculture, who shall have the powers and perform the duties heretofore conferred and imposed upon the board of cattle commissioners: *provided*, that no orders or regulations made by him under authority of sections four and seven of chapter ninety of the Revised Laws shall take effect until approved by the governor and council. His appointment shall be confirmed by the executive council. He shall report on or before the tenth days of January and July in each year to the state board of agriculture, who shall include an abstract of his reports in their annual report to the legislature. He shall receive an annual salary of two thousand dollars and his necessary expenses, and may appoint a clerk at a salary of twelve hundred dollars a year.

SECTION 4. Section one of chapter eighty-nine of the Re-

vised Laws is hereby amended by inserting after the word "agriculture," in the third line, the words :—the chief of the cattle bureau of the state board of agriculture:—so as to read :

Section 1. The governor and lieutenant-governor, ex officiis, the Secretary of the Commonwealth, the president of the agricultural college, the secretary of the state board of agriculture, the chief of the cattle bureau of the state board of agriculture, one person appointed from and by the Massachusetts society for promoting agriculture, one person appointed from and by each agricultural society which receives an annual bounty from the Commonwealth, and three other persons appointed by the governor, with the advice and consent of the council, shall constitute the state board of agriculture.

SECTION 5. So much of section three of this act as authorizes the appointment of said chief of the cattle bureau shall take effect thirty days after the passage of the act, and the remainder of the act shall take effect as soon as the said chief has been appointed and qualified.

SOCIETY MEETINGS.

CHICAGO VETERINARY ASSOCIATION.

The meeting was called to order by Dr. Allen, Third Vice-President of the society, at 8.40 P. M., Jan. 13, at McKillip Veterinary College, 1639 Wabash Ave.

The minutes of the previous meeting were read and approved. The Secretary reported that invitations had been forwarded to officers of the A. V. M. A., but that thus far no reply had been received.

The Treasurer, Dr. Walker, reported the amount of money in the treasury.

Under reports of committees, each committee was called upon respectively. The Committee on Legislation had no report to make, but considerable interest was manifested by the members of the society relating to amendments of the State law, which would strengthen it and make it more effective. Dr. Robertson advised the committee to be more active in their endeavors to improve the law, stating that the Legislature would meet before the committee had any demands to make. The general sentiment of the society was in favor of having the committee learn what the profession most needed and to so frame these needs in the form of amendments, to be presented to the next Legislature.

Dr. Quitman next stated that he had been devoting all his energies in other directions and that he would resign his place on the committee in favor of parties who have more time to devote to the cause. This, however, did not meet the approval of the society, most of the members claiming that he was the right man for the place.

The President called upon Dr. Worms, Chairman of the Entertainment Committee, for a report. Dr. Worms stated that he did not know that he was chairman of the committee; and as there was some money in the treasury it was his opinion that the society should have a banquet. This consideration was deferred, however, to be brought up under new business.

The Literary and Publication Committee, Dr. Walker, chairman, announced that Dr. White would read a paper at the next meeting.

The report of the Intelligence Committee was deferred to be brought up on the regular programme in place of a paper, as it so happened that there was no prepared paper on the programme for the evening.

Dr. Quitman, chairman on the special committee on subscriptions to create a fund for the entertainment of the A. V. M. A., should the next meeting be held in Chicago, made a report stating that the committee had $852.50 pledged and that there were still other business men who had not responded, among whom were some who would contribute very liberally. From present indications he concluded that the results of the committee's efforts were very encouraging. He further mentioned that the State Association had made no report and that he was unable to make any statement as to their success.

Next under the regular order of business came admission of new members. Dr. J. J. Millar's application, signed by Drs. Walker and McKillip, was referred to the Board of Censors, who, when called upon, reported unfavorably, stating that from the evidence which they had obtained in reference to the applicant, they could not report otherwise. Dr. Walker, who had vouched for the applicant, mentioned that he was surprised at the Board's report, and would be pleased to know upon what grounds the applicant was rejected. Dr. M. H. McKillip, who also vouched for Dr. Millar, stated that when he found himself in need of an associate, he (Dr. McKillip) had taken particular pains to get evidence of his character and as a result of his investigations had obtained good recommendations from the best people (lawyers, business men and ministers) of Sioux City,

Iowa, and consequently could not understand why the Board of Censors should make such a report.

Considerable discussion followed as to the power of the Board of Censors; the proper course to pursue under such circumstances; and the advisability of relieving the Board of its responsibility. Some of the members claimed that everything should be left to the Board of Censors, as they were an elective body whose duties were designated by the Constitution and By-laws of the society, and that it fell upon them by virtue of their office to inquire into the eligibility and fitness of proposed members. Others believed that it was the Board's duty to obtain all possible evidence and if their report did not meet the approval of the society, that it was necessary for them to submit their evidence to the society for their consideration. Another position maintained by several members present was that the society should relieve the Board of Censors of their responsibility by asking them to give their evidence to the society and allow its members to draw their own conclusions respectively. After a great deal of consideration Dr. Robertson made a motion requesting the Board of Censors to make known to the society the evidence they had in their possession. The motion was carried.

The evidence was turned over to the society by Dr. Hughes, Chairman of the Board, who explained to the society that he had first written to one party, who referred him to another, and he to another, and so on, until the Board had accumulated the evidence which they held in their possession. The evidence was then read to the society, and each member allowed to express his views on the subject, until the Chair decided that the discussion was out of order. On motion of Dr. Quitman, the discussion was closed.

The question of voting upon the application of Dr. J. J. Millar for membership, was next considered. Dr. Hicks inquired as to whether the society could vote upon an application that the Board of Censors had rejected. The Chair decided that the matter had been taken from their hands and was now before the society, and that it was the duty of the society to decide whether the applicant should be admitted or rejected.

On motion of Dr. A. C. Worms, a ballet was taken, two members being appointed as tellers. The result of the ballot was 10 Nos, and 7 Yeas.

As no paper had been prepared for the regular literary programme, the report of the Committee on New Literature was

read by Dr. Hughes, which embodied the subject of "Azoturia"; "Methylene Blue in the Treatment of Catarrh"; "Surgical Operations on Aged Patients"; "Nocard's Discovery as to the Origin of 'White Scour'"; "Vaccination for Dog Distemper; "Chloretone in Experimental Surgery"; A New Horseshoe Pad to Prevent Nail-Pricks"; "Anthrax in Cook Co., Ill."; and "A New Float Patented by Mr. Fehr."

"*Azoturia.*—The subject of azoturia is a particularly important one at this season of the year, and the cases met in city practice are uncomfortably numerous as well as very fatal. The subject is brought up by this committee more for the purpose of introducing a discussion with hopes of determining the advancement made in its therapeutics. Potassium iodide has been referred to during the past two years as a potent remedy, but recent observations have shown that it possesses no special virtue. As far as this committee has been able to learn the therapeutics of azoturia is still unsatisfactory, and that beyond attending to the comforts of the patient but little can be accomplished. In fact, the mild cases recover without medical attention, while the acute ones succumb in spite of any form of treatment.

"Members of this society who have suggestions to offer at this time will confer a valuable favor upon this committee if they will present them at this meeting.

"*Methylene Blue in the Treatment of Catarrh.*—It is evident from medical literature that methylene blue has great value in the treatment of catarrh of the upper air passages, when applied locally to the diseased membrane. Irrigations are made three times a day, the strength of 2 gm. to the liter, injected into the nasal cavities. In horses suffering from catarrh in the sub-acute form its efficacy at once becomes apparent, as has been shown by several recent trials. Except for the stain it leaves on white nostrils, this remedy, we believe, will become popular in equine medicine wherever it is put into use.

"*Surgical Operations on Aged Patients.*—Investigations of several modern veterinarians bring out the rather surprising statement that old patients bear out the results of capital operations much better than young ones; that age is never to be regarded as a contraindication for operative treatment, the other things being equal. Surgical wounds in old patients under favorable conditions, will heal promptly, but rather slower than in the young, but age has never been found to entirely prevent regeneration. A particular feature to remember about operating upon aged animals is, that they are more susceptible to

shock from loss of blood than younger animals, and that the surgeon should respect every drop of blood when operating on such patients, while in younger ones nominal loss of blood is of no special significance. Aside from the danger of injuring aged patients in securing them, there is evidently no need of undertaking operations on them reluctantly.

"*Nocara's Discovery.*—Prof. Nocard, the well-known French veterinarian, has recently demonstrated conclusively that white scours of calves is the direct result of an infection through the umbilicus, contracted either during or immediately after parturition. He has proven that young animals, whose umbilicus is properly treated at the time of parturition, do not contract the disease. This places an entirely new phase on this dangerous disease, and immediately places it among the preventable diseases. The discovery was made while investigating the outbreak in Ireland, to which country he was called by the British Government.

"*Vaccination for Dog Distemper.*—The veterinarian who is interested in the treatment of dogs will be delighted to learn that animals may be successfully immunized against this disease, as demonstrated by two French veterinarians, Drs. Physalix and Lygnières. They have succeeded in isolating a bacillus to which they attribute the disease, and from which they prepare a vaccine by attenuation. The value of such a discovery can hardly be estimated, especially in the dog hospital, where dog distemper is no less than a pest. The difficulty of preventing dogs from contracting distemper in canine hospitals is well known. If animals brought to hospitals can be vaccinated against the disease the veterinarian will have overcome an obstacle of no mean dimensions.

"*Chloretone in Experimental Surgery.*—Chloretone is a new hypnotic prepared by Parke, Davis & Co. It was introduced into the category of medicine several years ago with the intention of supplanting inhalation anæsthetics. Subsequent experiment, however, has shown that chloretone is a dangerous drug, and that animals completely anæsthetized with it do not readily revive and in fact few will survive profound anæsthesia thus produced. The great value of this drug, however, in experimental physiology as shown by its frequent use throughout the United States, has led to its adoption in the surgical clinics at the Chicago Veterinary College. It is found that animals anæsthetized with chloretone pass immediately into a profound state of anæsthesia and will remain so through hours and hours

of experimental work, giving the instructor and students an opportunity to make the greatest use of animate material for surgical instruction.

"*A New Horseshoe Pad.*—A new horseshoe pad for the special purpose of preventing nail pricks, consists of three layers of canvas, strengthened across the heel with a sheet iron plate, two inches wide, riveted with two rivets to the canvas. This pad can be made quickly by the horseshoer at the time of shoeing. It is cheap; it does not, like leather, favor loosening of the shoe. A pair will outwear two pairs of shoes, and its efficacy in preventing nail pricks is shown by the fact that in a stable of over 300 horses not a single nail prick has been sustained since they were put into use six months ago. The invention is the work of Mr. Donolan, superintendent stables of Armour & Co. The objection to the leather, tin, etc., are well known, and are entirely met by this new invention.

"*Anthrax in Cook County.*—A severe outbreak of this fell disease occurred twenty-five miles northwest of Chicago during last summer, in which the lives of thousands of the most valuable dairy cattle in the country were threatened. The number of deaths, which included two human beings, was legion.

"This committee refers to this outbreak for the special purpose of exemplifying the value of vaccination in stamping out this disease. The live-stock owners in the vicinity took immediate measures to stamp out the disease, and were eminently successful in preventing its spread beyond the immediate neighborhood.

"*A New Float.*—Mr. Fehr, a senior student in the McKillip Veterinary College, has invented a float of no mean value. The instrument possesses the unique feature of holding the float blade tight without the use of screws, as well as being readily attached to an angular float without much ceremony. Such an invention is, indeed, a boon to the veterinarian who practices dentistry. The old floats are seldom in working order on account of the screws becoming rusted, and an invention that will overcome this defect will be received with open arms. The use of this float for several weeks on a large number of animals has given the writer confidence in its practicability."

The report was discussed by Dr. Quitman on chloretone, and by Drs. Campbell, Hughes and Quitman on the use of slings in the treatment of azoturia.

Under the head of new business Dr. Quitman tendered his resignation as a member of the Legislative Committee. On mo-

tion of Dr. Walker, however, his resignation was not accepted.

Dr. C. F. Griiner's calendar was presented to the society as a violation of Sec. 6, Art. IX of the By-laws of the society, and by motion of Dr. Walker the matter was referred to the Board of Censors and the Secretary authorized to write a letter to Dr. Griiner calling his attention to the violation of the By-laws and requesting him to discontinue the use of the calendar.

There being no other business before the society, a motion was made to adjourn and meet at Chicago Veterinary College Feb. 10, 1902. Motion carried. E. MERILLAT, *Secretary.*

ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION.

This association met in annual session at the Brunswick Hotel, Decatur, Ill., January 9th and 10th, 1902. The meeting was called to order by the President, Dr. V. G. Hunt, of Arcola, Ill. The roll-call was responded to by a goodly number of members.

The opening address of President Hunt was an exceedingly interesting discourse, replete with interest to the association.

Dr. J. C. Hoxsey, of Auburn, was elected to membership, following a favorable report from the committee upon his application. President Hunt then introduced Dr. Hoxsey to the society.

The election of officers for the ensuing year was then held and resulted as follows:

President—Dr. V. G. Hunt, Arcola.

First Vice-President—Dr. C. A. Hurlbutt, Stonington.

Second Vice-President—Dr. F. Glassbrenner, Alton.

Secretary—Dr. W. A. Swain, Mt. Pulaski.

Treasurer—Dr. J. M. Reed, Mattoon.

Standing committees appointed by the President for the coming year were:

Membership—Drs. S. H. Swain, J. M. Reed, A. Travis, C. A. Hurlbutt and W. C. Dawson.

Programme—Drs. V. G. Hunt, W. A. Swain and S. H. Swain.

Arrangements—Drs. V. G. Hunt and F. Glassbrenner.

Legislation—Drs. John Osborne, V. G. Hunt, S. H. Swain and C. A. Hurlbutt.

An excellent paper upon the subject of "Metro-Peritonitis,"*

* Published elsewhere in this number of the REVIEW.

contributed by Dr. J. M. Reed, brought out some very interesting and instructive points with reference to this disease. He was responded to by Dr. V. G. Hunt.

Owing to the absence of a paper assigned to Dr. R. W. Brathwaite upon "Bovine Tuberculosis," the subject was very generally and well discussed by several of those present.

Dr. S. H. Swain reported upon a case of "Herpes Circinatus," being a very extraordinary case, which brought forth some very interesting points in the treatment of this disease.

The second day's session was called to order by President Hunt. Much discussion was indulged in by those present as to what should constitute eligibility of members. On motion, any action on the subject was deferred until the next meeting.

An able and instructive paper by Dr. V. G. Hunt, on "Cerebro-Spinal Meningitis," was well received, and was then responded to by Drs. John Osborne and S. H. Swain.

Dr. W. A. Swain read a very interesting report of a case of "Summer Sores on the Penis," which brought out considerable discussion as to the various modes of treating this disease.

Among the visitors present was Dr. A. Babb, of Springfield.

On motion, the location of meeting was again fixed in Decatur and dates in August to be selected by the Committee on Programme.

Meeting adjourned until August, 1902, at Decatur, Ill.

W. A. SWAIN, *Secretary.*

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

The annual meeting will convene in Philadelphia, March 4 and 5, in Room A, Odd Fellows' Temple, when the following papers will be presented: "Abortion," W. S. Phillips, Reading; "Calculi," J. F. Butterfield, South Montrose; "Poisoning in Cows," N. H. Allis, Wyalusing; "Rupture of the Flexor Tendons as a Complication of Azoturia," Chas. W. Boyd, Pittsburgh; "Municipal Meat Inspection," J. M. Carter, Philadelphia; "Peculiar Symptoms Attending Certain Forms of Colic," H. P. Eves, Wilmington, Del.; "The So-Called Black Tongue of the South," A. N. Lushington, Lynchburg, Va.; "My Experience with Argentum Colloidale Credé," John E. Spindler, Pittsburgh; "The Horse-shoer *vs.* the Veterinarian," Jno. E. Spindler, Pittsburgh; "Azoturia," James R. Mahaffy, Wilmington, Del.; "Breeding of the Trotting Horse," Charles

Lintz, Chester. Besides these Drs. Leonard Pearson, Philadelphia, and W. H. Mattson, Camp Ground, are down for papers whose titles are not yet announced. Numerons cases are also expected to be reported by members of the profession. On Tuesday, after luncheon, the convention, including the ladies, are invited to visit the "Vaccine and Anti-toxin Laboratories" of H. K. Mulford Co., Glenolden, Pa., after which a dinner will be served in Odd Fellows' Temple. The evening session will convene at 7.30.

CONNECTICUT VETERINARY MEDICAL ASSOCIATION.

The following resolutions were adopted by this association at the annual meeting, Feb. 4th, at Hartford.

WHEREAS, The Connecticut Veterinary Medical Association has learned with profound sorrow of the death of Dr. Rush S. Huidekoper, of Philadelphia, an honored member of the veterinary profession; a man who labored earnestly to improve the veterinary service in the United States Army, and one who devoted his life to the elevation of his chosen field of labors,

Resolved, That by his death the field of journalism has lost a valued helper; and, be it further

Resolved, That this association mourns his loss by causing a copy of these resolutions to be sent to the *Journal of Comparative Medicine and Veterinary Archives*, the AMERICAN VETERINARY REVIEW, and also be spread upon the association records.

WHEREAS, The Connecticut Veterinary Medical Association has lost, in the death of Dr. William H. Prophett, of Suffield, one of its older members; be it

Resolved, That this association hereby mourn his loss, and be it further

Resolved, That a copy of these resolutions be sent to the AMERICAN VETERINARY REVIEW, the *Journal of Comparative Medicine*, and also be spread upon the minutes of this meeting.

THE name of Dr. John J. Repp, of Ames, Iowa, was omitted from the list of members of the Committee on Pharmacopœia of the American Veterinary Medical Association, published in the February REVIEW, page 962, he having been appointed on that committee by President Winchester.

NEWS AND ITEMS.

GEERS, the celebrated driver, has recently added to his string a trotting mule who turned the Memphis track in 2:47¾.

DR. W. HORACE HOSKINS is now alone in the editorial and business conduct of the *Journal of Comparative Medicine*, Dr. H. D. Gill having retired from veterinary journalism.

DR. JAMES BEATTY (U. P., '98), Bureau of Animal Industry, stationed at Philadelphia, died at the Episcopal Hospital, Philadelphia, Dec. 21, of purpura hæmorrhagica.

DR. E. C. ROSS, of New Haven, Conn., has returned from the South, where he found the shooting excellent. The doctor has recently added many improvements to his hospital (previously fine), and now has one of the best equipped veterinary hospitals in the New England States.

DR. J. L. WILDER, formerly assistant to Prof. W. L. Williams, of the New York State Veterinary College, has removed to Dunkirk, N. Y., where he has located in practice, succeeding Dr. C. H. Jewell, who has accepted a position as meat inspector, B. A. I.

GREAT BRITAIN RID OF RABIES.—The London correspondent of the *Therapeutic Gazette* says: "The report of the Board of Agriculture from England on the eradication of rabies in a dog deserves careful reading. In England and Scotland there has not been a death from rabies since 1898, and this at a time, when France reports from 2000 to 3000 cases in a single year. A few cases of rabies in animals have occurred in South Wales, during this period, but no case has occurred in man. This result is entirely due to the uniform enforcement of the muzzling order throughout the country some three years ago. Now there is scarcely an area in which even a temporary muzzling is found necessary. May the government meet with the same results in the struggle with tuberculosis as in that with rabies!"

DR. DUNCAN MCEACHRAN, Principal of the Veterinary Department of McGill University, Montreal, Canada, has tendered his resignation as Dominion Veterinary Inspector, and Dr. Rutherford, former Member of Parliament, has been appointed in his stead. In an interview in relation to his retirement from this post, which he has held for so many years, Dr. McEachran made the following statement: "It must not be supposed that there is any friction between myself and the minister. On the contrary, our relations were never more friendly than at this mo-

ment, and in announcing his being obliged to carry out what we had on several previous occasions discussed, viz., the desirability of my taking my office to Ottawa, he was most complimentary in his expressions of respect and appreciation of my services. He said, in fact, that my services in organizing and for twenty-six years conducting a cattle quarantine service by which the animal plagues, such as pleuro-pneumonia, foot-and-mouth disease, etc., were effectually kept out of Canada, saved to Canadian agriculture many millions of dollars, and individually, I know that he regrets my resignation as much as any one. While I have resigned the active administrative duties of chief inspector, for the reason that I have had my home in Montreal for thirty-six years, my connection with veterinary education, and other important business matters requiring me to be located here, I would sacrifice too much were I to move to Ottawa to give my whole time to departmental work, at a salary far below that of a deputy minister. Consequently I tendered my resignation as chief inspector, and accepted the position of 'honorary veterinary adviser,' in which position I trust I may yet be allowed to assist in formulating and seeing carried out necessary measures for preventing the introduction of those ruinous animal plagues, and proper dealing with diseases occurring in animals in the country. I may say that, personally, I am too much interested financially in live stock production ever to become a passive spectator of a less vigorous policy in dealing with these matters than I have been for twenty-six years past."

GLYCERIN SUPPOSITORIES FOR VETERINARY USE.—The veterinary practitioner has often to face certain emergencies, when no other laxative is nearly so satisfactory as glycerin, applied directly to the rectal mucous membranes. Glycerin owes its efficacy to an increase of secretion, which it causes from the mucous glands, and to the rapid extraction of water from the membranes, causing a peristaltic action of the intestines. Glycerin, oil, soap or other enema heretofore used, have always been more or less impracticable, and so Messrs. Eimer & Amend, the well known veterinary druggists of New York City, have prepared a glycerin suppository which will produce a full evacuation without pain in from 5 to 15 minutes. A certain irritation observed by some practitioners which was induced after the application of glycerin, is entirely overcome in these suppositories by employing only the purest glycerin, and combining it with an excipient, which render them permanent under ordi-

nary conditions, without in any manner compromising their therapeutic activity. Their suppositories are endorsed by a large number of medical observers, who have found them to be a safe, prompt, unobjectionable and reliable means of attaining an evacuation of the lower bowels, without irritation to the alimentary tract, and without establishing a habit compelling the continued administration of drugs. Many cases of obstinate constipation, which failed to respond to the most powerful purgatives, yielded promptly to them. Constipation following foaling is promptly relieved without any disagreeable results. Every veterinary surgeon should carry a few of these suppositories in his satchel. In how many stables will he find hot water, soap or oil, or even a syringe to give an enema, especially when he is out on a hurry call at night? Equipped with one of these glycerin suppositories he will not lose any valuable time, and after inserting it, he can attend to other duties, being assured of its speedy and prompt action. Having selected a desirable cone for their shape, they are rendered easy for introduction, and they may readily be divided in two, to meet requirements of younger animals. Each suppository is enclosed separately in a glass bottle, securely stoppered with a screw cap to guard against any deteriorating influences. Price per single suppository, 25 cents; price per dozen suppositories, $2.50.

THE BRITISH PURCHASES OF AMERICAN HORSES.—In order to mount her army in South Africa Great Britain has purchased horses and mules rejected by the War Department for American troops. Since the beginning of the Boer war the United States has exported to Africa 82,427 horses and 95,460 mules. Practically all of these animals were obtained for the British service. Their cost aggregated $24,887,104 and the average price paid was $139. During the last four years the United States has purchased 59,995 horses and mules, which before acceptance passed a most rigid inspection. Their average cost was $88.90. The original purchase price of the horses and mules it obtained was not the full cost to the British government. Their transportation from New Orleans to Cape Town or to other African points was expensive, running the price considerably above that paid to the American stockmen. Officials of the War Department do not criticise the British officials for paying such a high price for animals, nor in view of the conditions existing in South Africa do they seriously blame British agents for selecting animals which were only "serviceably sound," no matter what blemishes they might have. It is said that a British agent

would make no objection to a horse which had a spavin provided it could do a reasonable amount of work. It is a fact that stockmen holding contracts to supply the United States with horses were not concerned if the animals were rejected. One of the dealers was asked by a curious officer: "What do you do with the rejected horses? I should think you would suffer bankruptcy in consequence of your inability to furnish horses which come up to the army specifications." "I don't mind how many you reject," was the response, "provided you finally select from the droves I bring horses which will meet your requirements. All those you reject I sell to the British at good prices." The British have not been by any means as careful as the War Department in its purchase of animals. In some quarters here the belief exists that the London government has paid a higher price for animals than was necessary, and it is believed there is foundation for the charge made by the *St. James Gazette* that "Horses, or at least four-legged creatures, have been bought for $165 when only worth a quarter of that sum. The difference—three-quarters—has gone into the pockets of certain persons." Major Arthur Lee, formerly British Military Attaché in Washington, reported that he had advised the English War Office that he could obtain the services of the "horse expert" of the United States Army. No one holds such a position in the American army, but undoubtedly civilians who have been employed as inspectors under the War Department notified Major Lee of their willingness to enter the British service. Had they been employed, undoubtedly the British government in many instances would have obtained better horses and have paid a smaller sum for them.—(*New York Herald*, *Feb.* 23.)

To Kill Stray Dogs.—A bill has been introduced in the New York Assembly prohibiting humane societies from disposing of lost or strayed dogs. At present the societies sell many of the dogs picked up by them and give away others. Under this proposed law, they will be required to kill them if not claimed within five days. The Review long ago protested against the sale of dogs that had been roaming the streets, exposed to all manner of contagion, particularly rabies. The circumstance which brought the subject prominently to our notice was the case of a collie, purchased from a "shelter," and presented to a little boy for a playmate. In a week or two he bit the child, and speedily died of dumb rabies, the child taking antirabic inoculations and escaping serious consequences.

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Alex. Eger, 34 East Van Buren St., Chicago, Ill., Veterinary Publisher and dealer in Veterinary Instruments, Books, and Drugs, is the authorized agent for the REVIEW *in Chicago and the Middle West, and will receive subscriptions and advertisements at publishers' rates.*

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THE ZENNER DISINFECTANT COMPANY very kindly offer to their professional friends their very handsome little 1902 calendar. The picture represents a very fine setter dog. It is gotten up in six colors, is beautifully printed, and with all a very attractive and neat calendar, which they will be very glad to send postpaid to any reader of the AMERICAN VETERINARY REVIEW who addresses them at 24 Bates St., Detroit, Mich.

THIS MONTH the advertisement department displays upon its "bulletins" some new things of especial interest to our readers, and the "old standards" display their worth by their constance. Among the "new things," Eimer & Amend (whose ad. constitutes one of the old "landmarks" of the REVIEW), have placed at the disposal of the veterinary profession a veterinary glycerin suppository, which promises to be a great aid in the treatment of acute bowel troubles in producing a rapid evacuation of their contents.

REVIEWS WANTED.

The publishers will pay 25 cents each for copies of the April, 1901, issue. Address, Robert W. Ellis, D. V. S., Bus. Mgr., 509 W. 152d Street, New York.